EXHIBIT A

(Forms PTO-1449 showing that ALL references relied upon by protestor have already been considered by the Examiner prior to the last Office Action)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE REISSUE APPLICATION OF: J. T. LIN :

: GROUP: 3739

SERIAL NO: 09/084,441 :

FILED: May 27, 1998 : EXAMINER: MICHAEL PEFFLEY

FOR: OPHTHALMIC SURGERY METHOD USING NON-CONTACT SCANNING LASER

37 CFR 1.291 Public Protest

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I. 37 CFR 1.291(a) Preamble

This is a public protest against the application identified above. That application is purported to presently be located in Group 3739.

II. 37 CFR 1.291(a)(1) and MPEP 1901.04, Third Paragraph

The protest is timely because the application identified above has not received a notice of allowance and the protest is submitted within the 2- month period following announcement of the filing of the reissue application in the January 19, 1999 Official Gazette. See MPEP1441.

III. 37 CFR 1.291(a)(2)

As indicated by the certificate of service accompanying this protest, a copy of this protest and all of the items submitted with the protest are being served upon the applicants, in accordance with 37 CFR 1.248.

IV. 37 CFR 1.291(b) - Substantive Basis for the Protest

Submitted herewith are (1) the attachments explaining why the claims in the Lin reissue application are unpatentable and (2) the numbered prior art exhibits identified below.

A. List of Attachments

Submitted herewith are the following numbered attachments:

Attachment 1: [DELETED]

Attachment 2: Explanations of why the reissue application is improper because it violates the recapture rule doctrine.

Attachment 3: Explanation of why the Lin reissue application's claims violates 35 USC 112 because they do not have written description support.

Attachment 4: Explanations of why certain prior art anticipates and certain combinations of prior art render obvious all claims in the Lin reissue application.

B. 37 CFR 1.291(b)(1) The List of Patents, Publications, and Other Information Relied Upon

Checked

Reference 1: United States patent No. 4,718,418 to L'Esperance, Jr., issued January 12, 1988.

Checked

Reference 2: United States patent No. 4,665,913 to L'Esperance, Jr., issued May 19, 1987.

Checked

Reference 3: United States patent No. 4,838,679 to Bille, issued June 13, 1989.

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Reference 4: European Patent Application Publication 296,982 to Hanna et al., published December 28, 1988.

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Reference 5: Ren et al., "Corneal Refractive Surgery Using An Ultra-violet (213 nm) Solid State Laser, "SPIE Vol. 1423 Ophthalmic Technologies (1991).

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Reference 6: Ren et al., "Ablation of the Cornea and Synthetic Polymers Using a UV (213 nm) Solid-State Laser," IEEE Journal of Quantum Electronics, Vol. 26 (December 1990).

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Reference 7: Gailitis et al., "Solid State Ultraviolet (213 nm)Ablation of the Cornea and Synthetic Collagen Lenticules," Lasers in Surgery and Medicine 11:556-562 (1991).

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Reference 8: J.T.Lin, "A Multiwavelength Solid State Laser for Ophthalmic Applications," SPIE Vol. 1644 Ophthalmic Technologies (1992).

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Reference 9: L'Esperance, "Ophthalmic Lasers," Chapter 24: Corneal Laser Surgery, The C.V. Mosby Co., St. Louis (1989).

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Reference 10: L'Esperance, "Ophthalmic Lasers," Chapter 26: New Laser Systems, Their potential Clinical Usefulness, and Investigating Laser Procedures", The C.V. Mosby Co., St. Louis (1989).

NP 3/28/2000

C. 37 CFR 1.291(b)(2) A Concise Statement of the Relevance of Each Reference

1. Reference 1: United States patent No. 4,718,418 to L'Esperance, Jr., Issued January 12, 1988

The L'Esperance '418 patent is relevant because (1) it is directed toward the field of

laser ablation for ophthalmic surgery, (2) it teaches controlled laser beam scanning to correct myopic and hyperopic conditions, astigmatism, (3) it teaches performing radial or other incisions for keratotomy procedures, (4) it inherently teaches overlapping of the laser beam pulses during a scanning procedure, (5) it explicitly teaches computer programmed control of the scans, (6) it discloses using a laser at a pulse repetition of 200 Hz, providing a beam spot having a dimension of 0.5 mm, and providing laser pulses having a duration of 15 ns, (7) it teaches controlling the irradiated flux density and exposure time to achieve desired depth of the ablation and desired ultimate surface change in the cornea, (8) it discloses scanning a laser beam from a laser emitting a pulse in the ultraviolet range, and it discloses gas-lasers such as xenon-fluoride, nitrogen, xenon-chloride, krypton-fluoride, argon-fluoride, fluorine lasers and other lasers, including crystal lasers and laser-pumped lasers as alternative laser pulse sources, and (9) it teaches linear, circular, radial and concentric circle scan patterns produced by pulsing a laser beam spot on the surface of the eye.

The teachings of the U.S. patent No. 4,718,418 to L'Esperance, Jr. are 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

No energy less than 10 mJ

Has removal of .005 to .5 m

The L'Esperance '418 patent anticipates claims 24, 28, 33, 37, 38 and 91-93 of the Lin reissue application.

Claims 1-5, 7-9, 10, 12-18, 22-102 and 104 would have been obvious to one of ordinary skill in the art based upon the system and method disclosed in the L'Esperance '418 patent in view of the additional teachings in references identified as numbers 3-10 in the protest.

Same

2. **Reference 2: United States patent No. 4,665,913 to L'Esperance, Jr., Issued May 19, 1987**

The L'Esperance '913 patent is relevant because (1) it is directed toward the field of

laser ablation for ophthalmic surgery, (2) it describes controlled laser scanning (a) to correct myopic and hyperopic conditions, astigmatism and (b) to perform incisions of a radial or other keratotomy, (3) it inherently teaches overlapping of the beam spot in different pulses to achieve the desired ablation depth, (4) it teaches computer program controlled scans, (5) it teaches providing laser beam pulses at a repetition of 200 Hz, a laser beam spot dimension of 0.5 mm, and a pulse duration of 15 ns, (6) it teaches controlling the irradiated flux density and exposure time to achieve desired depth of the ablation and desired ultimate surface change in the cornea, (7) it teaches using a scanning laser emitting in the ultraviolet range, such as a gas-lasers including xenon-fluoride, nitrogen, xenon-chloride, krypton-fluoride, argon-fluoride, fluorine gas lasers, and other lasers including crystal lasers and laser-pumped lasers as alternative sources, and (8) it teaches linear, circular, radial and concentric circle scan patterns produced by pulsing a laser beam spot on the surface of the eye.

The teachings of the U.S. patent No. 4,665,913 to L'Esperance, Jr. are 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

The L'Esperance '913 patent anticipates claims 24, 28, 33, 37, 38 and 91-93 of the Lin reissue application.

Claims 1-5, 7-9, 10, 12-18, 22-102 and 104 would have been obvious to one of ordinary skill in the art based upon the teachings disclosed in the L'Esperance '913 patent in view of the teachings in the references identified by numbers 3-10 in the protest.

3. Reference 3: United States patent No. 4,838,679 to Bille, Issued June 13, 1989

The Bille '893 patent is relevant because (1) it is directed toward the field of laser scanning for eye examinations, in particular corneal examination, and (2) it describes a laser scanning mechanism including a galvanometer with pivotal mirrors configured to deflect the

laser beam at predetermined angles.

The teachings of the U.S. patent No. 4,838,679 to Bille are 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

4. **Reference 4: European Patent Application Publication 296,982 to Hanna et al, Published December 28, 1988**

The 1988 Hanna et al. European application reference is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery and (2) it teaches a synchronizing mechanism to synchronize the displacement of a laser spot on the cornea with the pulses of the laser.

The 1988 Hanna et al. European application was published December 28, 1988, and thus is 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

5. **Reference 5: Ren et al., "Corneal Refractive Surgery Using An Ultra-violet (213 nm) Solid State Laser, "SPIE Vol. 1423 Ophthalmic Technologies (1991)**

The named inventor in this application, J.T.Lin, is a co-author of the 1991 Ren et al. publication. This reference was not made of record in Application 07/985,617, which issued as the Lin patent 5,520,679.

The 1991 Ren et al. publication is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery, (2) it describes using a Q-switched, flash-lamp-pumped, Nd:YAG solid state laser emitting 213 nm and 266 nm radiations, with a pulsing frequency of 10 Hz, a pulse duration of 10 ns, energies per pulse of 0.4 mJ/pulse and 2.3 mJ/pulse, spot sizes of 1 mm and 0.2 mm, and it discloses that those laser pulses ablate the cornea at an ablation rate of 0.3 μm/pulse, (3) it specifically suggests rapidly pulsing the laser in the KHz range, (4) it teaches scanning the laser on the cornea with state-of-the-art scanning technology for the purpose of corneal sculpting, (5) it teaches an algorithm to predetermine a

useful scanning pattern, and (6) it describes scanning of a pulsed laser beam in a substantially overlapping linear pattern of fixed area spots, and discloses that the overlapping is around 30%.

The 1991 Ren et al. publication is dated January 21-22, 1991 and purports on its face to be a presentation at the Ophthalmic Technologies Conference held in January 21-22, 1991 in Los Angeles, California. Accordingly, this publication was available no later than January 22, 1991, and it was published in June of 1991. Therefore this reference is 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

The 1991 Ren et al. publication anticipates claims 24-31, 33, 34, 36, 38, 39, 40, 42, 43, 45, 47, 69-71, 73, 76-79, 91-96 of the Lin reissue application.

6. **Reference 6: Ren et al., "Ablation of the Cornea and Synthetic Polymers Using a UV (213 nm) Solid-State Laser," IEEE Journal of Quantum Electronics, Vol. 26 (December 1990)**

The named inventor in this application, J.T.Lin, is a co-author of the 1990 Ren et al. publication. This reference was not made of record in Application 07/985,617, which issued as the Lin patent 5,520,679.

The 1990 Ren et al. publication is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery, (2) it describes using a Q-switched, flash-lamp-pumped, Nd:YAG solid state laser emitting 213 nm and 266 nm radiations, with a pulsing frequency of 10 Hz, a pulse duration of 10 ns, energies per pulse of 0.4 mJ/pulse and 2.3 mJ/pulse, spot sizes of 1 mm and 0.2 mm which ablate the cornea at ablation rates of 0.3 μm/pulse and submicrometer/pulse, (3) it suggests rapidly pulsing the laser in the KHz range, and (4) it teaches scanning the laser on the cornea with state-of-the-art scanning technology for corneal sculpting.

The 1990 Ren et al. publication is dated December 1990. Therefore its teachings are 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

The 1990 Ren et al. publication anticipates claims 24-32, 36, 39-43, 45, 78, 79, 91-98 of the Lin reissue application.

7. **Reference 7: Gailitis et al., "Solid State Ultraviolet (213 nm)Ablation of the Cornea and Synthetic Collagen Lenticules," Lasers in Surgery and Medicine 11:556-562 (1991)**

The named inventor in this application, J.T.Lin, is a co-author of the 1991 Gailitis et al. publication. This reference was not made of record in Application 07/985,617, which issued as the Lin patent 5,520,679.

The 1991 Gailitis et al. publication is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery, (2) it describes using a Q-switched, Nd:YAG solid state laser emitting 213 nm and 266 nm laser pulses, a pulsing frequency of 10 Hz, a pulse duration of 10 ns, energies per pulse of 0.4 mJ/pulse and 2.3 mJ/pulse, a spot dimension of 0.2 mm which ablate the cornea at ablation rates of 0.23 μm/pulse and 1.0 μm/pulse, respectively, (3) it suggests using laser pulse rates of 1,000-10,000 Hz, (4) it suggests using a near 193 nm wavelength emitting solid state laser, (5) it inherently teaches 100% overlapping of different pulses in a scanning pattern, (6) it describes and teaches using a rapidly pulsed scanning ultraviolet laser system capable of correcting spherical and astigmatic refractive errors and of smoothing irregular corneas, and (7) it suggests coupling the scanning system with a computer (a) to reshape the cornea or (b) to recontour a synthetic epikeratoplasty lenticule.

The 1991 Gailitis et al. publication was published December 2, 1991. Therefore its teachings are 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue

application.

The 1991 Gailitis et al. publication anticipates claims 24-31, 33, 34, 36, 38-40, 42-43, 45, 47, 78, 79, 91-96 of the Lin reissue application.

8. Reference 8: J. T. Lin, "A Multiwavelength Solid State Laser for Ophthalmic Applications," SPIE Vol. 1644 Ophthalmic Technologies (1992)

The named inventor in this application, J.T. Lin, is the author of the 1992 Lin publication. Although this reference was mentioned in the specification, it was not included on a form PTO-1449 filed in Application 07/985,617, which issued as the Lin patent 5,520,679.

The 1992 Lin publication is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery, (2) it describes using Q-switched, flashed-pumped, Nd:YAG and Nd:YLF solid state lasers emitting 1064 nm, 532 nm, 355 nm, 266 nm, 213 nm, 210 nm, and what it calls the "mid-infrared spectra" radiations of 1.9-2.2 μm and 2.8-3.2 μm, discloses pulse frequencies of 10 Hz, 15 Hz, and 200 Hz, pulse durations of 250 μs, 3-10 ns, pulse energies of 0.5-1.2 mJ/pulse, 5 mJ/pulse, and 30 mJ/pulse, spot sizes of 0.17-0.55 mm, 1 mm and 6 mm, and ablation rates for those parameters of 0.15-1.0 μm/pulse, (3) it teaches 30-50% overlapping of pulses, (4) it teaches optical parametric oscillation (OPO) techniques, and (5) it teaches using a scanning galvanometer which is computer controlled to provide a certain scanning. Lin admits that he did not invent the computer modeling in the acknowledgments at the end of this article.

The 1992 Lin publication is dated January 19-21, 1992 and purports on its face to be a presentation at the Ophthalmic Technologies Conference held in January 19-21, 1992 in Los Angeles, California, and the paper was published in a journal in June of 1992, which is more than one year prior to the filing date of the Lin CIP application. Therefore, the 1992 Lin

publication is non antedatable prior art to the claims in the Lin reissue application that do not have 35 USC 112 support in the Lin parent application.

Moreover, an ablation rate range of 0.05-0.5 µm/pulse does not find 35 USC 112 first paragraph support in the Lin reissue application or the Lin parent application. However, claims 1-23, 36, 45, 64, 78, 90, 94 define that limitation. Therefore, claims 1-23, 36, 45, 64, 78, 90, 94 do not benefit from any of Lin's filing dates, which means that the 1992 Lin publication is non-antedatable prior art to those claims.

9. Reference 9: L'Esperance, "Ophthalmic Lasers," Chapter 24: Corneal Laser Surgery, the C.V. Mosby Co., St. Louis (1989)

The 1989 L'Esperance publication (Chapter 24) is relevant because (1) it is directed toward the field of laser ablation for ophthalmic surgery, (2) it describes an optical system for ophthalmic surgery including a solid state laser (YAG), (3) it teaches an optical aiming mechanism using a visible aiming beam, (4) it teaches focusing the laser beam on the cornea using lenses, (5) it teaches a partial mirror configured to let through 1064 nm light from a Nd:YAG laser being light pumped, (6) it teaches the use of ultraviolet and infrared radiation for cornea surgery, (7) it teaches the use of an argon fluorine excimer laser, (8) it teaches an ablation removal rate of 0.1-0.5 µm, (9) it teaches a corneal surgery performed with 4 and 6.6 mJ/pulse and 15-20 Hz using an ArF excimer laser, (10) it teaches corneal surgery performed at 0.4 mJ/pulse and 60 Hz, and (11) it teaches laser beams capable of photoablating corneal tissue for laser radial keratectomy.

The 1989 L'Esperance publication (Chapter 24) was published in 1989. Therefore, it is 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

10. **Reference 10: L'Esperance, "Ophthalmic Lasers," Chapter 26: New Laser Systems, Their potential Clinical Usefulness, and Investigating Laser Procedures", The C.V. Mosby Co., St. Louis (1989)**

The 1989 L'Esperance publication (Chapter 26) is relevant because (1) it is directed to the field of laser ablation for ophthalmic surgery, (2) it teaches using diode lasers and it suggests using the diode lasers for ophthalmologic applications, (3) it describes a diode laser used for photocoagulation, (4) it shows overlapping spots having a dimension of about 0.5 mm, (5) it suggests using a diode laser-pumped Er:YAG laser for corneal photoablation, (6) it shows a radial scanning pattern on the cornea performed for a radial keratotomy procedure, and (7) it suggests ultraviolet and infrared lasers operated "with extremely short pulses in the nanosecond and picosecond range" to make incisions (actually excisions) in the cornea.

The 1989 L'Esperance publication (Chapter 26) was published in 1989. Therefore, it is 35 USC 102(b) non-antedatable prior art to the claims in the Lin reissue application.

D. **37 CFR 1.291(b)(3) The Copy of Each Patent and Publication Relied Upon**

A copy of each patent and publication relied upon is being (1) filed with this paper and (2) served on the attorney of record for the Lin reissue application.

E. **Violation of 35 USC 251/35 USC 111(a)(4) Requirements**

[DELETED]

F. **Violation of the Recapture Rule Doctrine**

Submitted herewith as Attachment 2 are explanations why the Lin reissue application

is improper because it violates the recapture rule doctrine.

G. Failure to Comport with Requirements of 35 USC 112, First Paragraph

Submitted herewith as Attachment 3 are explanations why the Lin reissue application's claims do not comport with the requirements of the first paragraph of 35 USC 112.

H. The Claims in the Lin Reissue Application Are Unpatentable in View of the Prior Art

Submitted herewith as Attachment 4 are explanations why certain prior art references anticipate certain claims and certain combinations of prior art references render certain claims obvious within the meaning of 35 USC 103.

V. 37 CFR 1.56

The protester directs the attention of the applicant to the requirements of the preamble of 37 CFR 1.56 and 37 CFR 1.56(a)(2). Accordingly, the applicant is advised to file a copy of this protest in all related applications in order to comply with 37 CFR 1.56.

Respectfully submitted

Benoit Castel

Benoit Castel, Esq.
Registration No. 35,041

PROTEST OF 09/084,441

ATTACHMENT 1 - VIOLATION OF 35 USC 251

[DELETED]

ATTACHMENT 2 - VIOLATION OF THE RECAPTURE RULE

I. Why the Claims of the Lin Reissue Application Violate the Recapture Rule 2

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2. The "Ablation Rate of 0.05-0.5 Mm/pulse" Limitation 3

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C. The Three Material Limitation in the Lin Patent's Claims That Are *Not* in the Lin Reissue Application's Claims Were Surrendered by Lin During prosecution of the Lin Application in Exchange for the Lin Patent 4

1. Changes to the Claims in the Prosecution History of the Lin Patent 4

2. Arguments Based on the Claim Changes in the Lin's Patent Prosecution History 4

a. The "Generally Fixed" Spot Size Limitation 4

b. The Ablation Rate of 0.05-0.5 µm/Pulse Limitation 4

c. The Galvanometer Limitation 5

D. Lin Clearly Surrendered Subject Matter in Exchange for the Lin Patent, and That Surrendered Subject Matter Has "Crept" Back into the Claims in the Lin Reissue Application 5

E. The New Claims of the Lin Reissue Are Broader than the Claims in the '679 Patent in an Aspect Germane to a Prior Art Rejection 6

III. Conclusions 6

I. Why the Claims of the Lin Reissue Application Violate the Recapture Rule

This attachment explains why claims 24-104 are improper because they violate the recapture rule doctrine. This doctrine prevents a reissue application from recapturing subject matter that it appears that the applicant gave up in reaching an agreement with the USPTO in obtaining the original patent. The determination of what was given up can be based upon either actual addition of limitations in claims during the prosecution of the application that matured into the patent or merely by the applicant arguing that a claimed feature was important to the invention. Relevant case law on the recapture rule is presented below.

MPEP 1412.02 states that:

> A reissue will not be granted to 'recapture' claimed subject matter deliberately cancelled in an application to obtain a patent.

In Hester Industries v. Stein, Inc., 142 F.3d 1472, 1480, 46 USPQ2d 1641, 1648 (Fed. Cir. 1998)(citations omitted), the court stated that:

> Under the recapture rule, claims that are "broader than the original patent claims in a manner directly pertinent to the subject matter surrendered during prosecution" are impermissible.

In re Clement, 131 F.3d 1464, 1469, 45 USPQ2d 1161, 1164 (Fed. Cir. 1997)(quoting In re Byers, 230 F.2d 451, 455, 109 USPQ 53, 55 (CCPA 1956), the court stated that:

> Amending a claim 'by the inclusion of [an] additional limitation has exactly the same effect as if the claim as originally presented had been canceled and replaced by a new claim including that limitation.'

Thus "canceled subject matter" to which the rule against recapture applies includes the subject matter defined by a claim prior to a narrowing amendment of that claim.

II. Applicability of the Recapture Rule to the Lin Reissue Application

A. The Three Step Clement Test for Violation of the Recapture Rule

In Clement, the Federal Circuit outlined a three step process to evaluate applicability of the recapture rule. Those steps are:

1. Step 1 - Aspect of Broadness

> The first step in applying the recapture rule is to determine whether and in what 'aspect' the reissue claims are broader than the patent claims. For example, a reissue claim that deletes a limitation or element from the patent claims is

broader in that limitation's aspect. [Id. at 1468, 45 USPQ2d at 1164.]

2. **Step 2 - Was Broader Aspect Surrendered**

The second step is to determine whether the broader aspects of the reissue claims relate to surrendered subject matter. To determine whether an applicant surrendered particular subject matter, we look to the prosecution history for arguments and changes to the claims made in an effort to overcome a prior art rejection. [Id. at 1469, 45 USPQ2d at 1164 (citations omitted).]

3. **Step 3 - Surrendered Subject Matter Recaptured**

Once we determine that an applicant has surrendered subject matter of the cancelled claims or amended claims, we then determine whether the surrendered subject matter has crept into the reissue claim. [Id. at 1469, 45 USPQ2d at 1164.]

B. **The Three Material Limitations in the Lin Patent's Claims that are Not in the Lin Reissue Application's Claims**

The new claims (claims 24-104) in the Lin reissue application are broader than the claims in the Lin '679 patent in three material aspects. The new claims are *not* limited to include (1)the "generally fixed spot size," (2) "ablation rate of 0.05-0.5 µm/pulse," or (3) a"galvanometer scanning mechanism" as defined by independent claim 1 in the Lin patent, and independent claim 1 in the Lin patent was the only independent claim in the Lin patent and therefore the broadest claim in that patent.

1. **The "Generally Fixed Spot Size" Limitation**

Claims 24-104 of the Lin reissue application do not contain the "generally fixed spot size" limitation, and they are therefore broader than the patent claims in that aspect. Claims 28-31, 40, 57-59 recite a spot size of less than 1 mm, and claim 85 recites a spot size of less than 2 mm. However, these limitations do not define the "generally fixed spot size" recited in claim 1 in the Lin '679 patent.

2. **The "Ablation Rate of 0.05-0.5 Mm/pulse" Limitation**

Claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93 and 95-104 of the Lin reissue application do not contain the "ablation rate of 0.05-0.5 µm/pulse" limitation recited in claim 1 in the Lin '679 patent.

3. **The "Galvanometer Scanning Mechanism" Limitation**

Claims 24-47, 69-80, 82-86, 89, 91-104 of the Lin reissue application do not contain the "galvanometer scanning mechanism" limitation recited in claim 1 in the Lin '679 patent.

C. The Three Material Limitation in the Lin Patent's Claims That Are *Not* in the Lin Reissue Application's Claims Were Surrendered by Lin During prosecution of the Lin Application in Exchange for the Lin Patent

1. Changes to the Claims in the Prosecution History of the Lin Patent

Claim 1 was amended in the amendment dated August 7, 1995 to include the limitation reciting a "generally fixed" spot size.

Claim 1 was amended in the amendment dated August 7, 1995 to include the limitation reciting an ablation rate of 0.05-0.5 µm/pulse.

Claim 1 was amended in the amendment dated December 26, 1995 to include the limitation reciting a galvanometer scanning mechanism.

2. Arguments Based on the Claim Changes in the Lin's Patent Prosecution History

a. The "Generally Fixed" Spot Size Limitation

Lin argued that amended claim 1 was patentable over the applied prior art (L'Esperance '372 patent) because L'Esperance teaches a continuously changing spot size, which is "key to [L'Esperance's] invention." Amendment dated August 7, 1995 at page 5 lines 4-20. In the next amendment, Lin argued that twice amended claim 1 was patentable over the applied prior art (L'Esperance '418 patent) because "it would be unobvious to a person of ordinary skill in the art at the time this application was filed to ... use a generally fixed spot size." Amendment dated December 26, 1995 at page 4 lines 17-20.

In response to the December 26, 1995 amendment, the examiner allowed the Lin application.

b. The Ablation Rate of 0.05-0.5 µm/Pulse Limitation

Lin argued that amended claim 1 was patentable over the applied prior art (L'Esperance '372 patent) because Lin's claimed invention "removes .05 to .5 micron of cornea tissue," and "approximately .30 microns per pulse which is approximately 42 times less tissue per pulse than used in L'Esperance." Amendment dated August 7, 1995 at page 6 lines 7-26. Lin also argued that "[i]n contrast [to L'Esperance], Applicant's approach . . . remov[es] only approximately 0.3 microns of tissue . . .." Amendment dated August 7, 1995 at page 9 lines 5-7.

In the next amendment dated December 25, 1995, Lin argued that twice amended claim 1 was patentable over the applied prior art (L'Esperance '418 patent) because "it would be unobvious to a person of ordinary skill in the art at the time this application was filed to . . . use

a generally fixed spot size for removing .05-.5 microns of cornea tissue per pulse." Amendment dated December 26, 1995 at page 4 lines 17-21. Lin further argued that the "[a]pplicant typically removes approximately .30 microns per pulse which is approximately 42 times less tissue per pulse than used in current L'Esperance patents." Amendment dated December 26, 1995 at page 5 lines 23-25.

In response to the December 26, 1995 amendment, the examiner allowed the Lin application.

c. **The Galvanometer Limitation**

Lin argued that twice amended claim 1 was patentable over the applied prior art (L'Esperance '418 patent) because "[t]he rapid scanning is accomplished with a galvanometer scanner which operates in a very rapid fashion in comparison to the scanning techniques described in L'Esperance." Amendment dated December 26, 1995 at page 6 lines 1-3.

In response to the December 26, 1995 amendment, the examiner allowed the Lin application.

D. **Lin Clearly Surrendered Subject Matter in Exchange for the Lin Patent, and That Surrendered Subject Matter Has "Crept" Back into the Claims in the Lin Reissue Application**

Lin surrendered all subject matter that is not limited to a "generally fixed" spot size because (1) Lin amended his claims to include that limitation in response to a prior art rejection and (2) Lin argued that the addition of that limitation distinguished over the prior art rejection. Claims 24-104 of the Lin reissue application do not define the "generally fixed spot size" limitation. Since Lin surrendered subject matter that is not limited to a generally fixed spot size, because claims 24-104 are not limited to a generally fixed spot size, claims 24-104 violate the recapture rule and therefore are unpatentable.

Lin surrendered all subject matter that is not limited to an ablation rate of 0.05-0.5 μm/pulse because (1) Lin amended his claims to include that limitation in response to a prior art rejection and (2) Lin argued that the addition of that limitation distinguished over the prior art rejection. Claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93 and 95-104 of the Lin reissue application do not define the ablation rate of 0.05-0.5 μm/pulse limitation. Since Lin surrendered subject matter that is not limited to an ablation rate of 0.05-0.5 μm/pulse, and since claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93 and 95-104 of the Lin reissue application are not limited to an ablation rate of 0.05-.5 μm/pulse, claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93 and 95-104 violate the recapture rule and therefore are unpatentable.

Lin surrendered the subject matter that does not define a galvanometer because (1) Lin amended his claims to include that limitation in response to a prior art rejection and (2) Lin argued that the addition of that limitation distinguished over the prior art rejection. Because claims 24-47, 69-80, 82-86, 89 and 91-104 of the Lin reissue application do not include the galvanometer limitation, and because Lin surrendered that subject matter, claims 24-47, 69-80,

82-86, 89 and 91-104 violate the recapture rule and therefore are unpatentable under 35 USC 251.

E. The New Claims of the Lin Reissue Are Broader than the Claims in the '679 Patent in an Aspect Germane to a Prior Art Rejection

In Clement, the court added a step in its analysis for reissue claims that are broader than the patent claims in some aspects, but narrower in others. See Id. at 1470, 45 USPQ2d at 1165, see also MPEP 1412.02. The court stated that "if the reissue claim is as broad as or broader in an aspect germane to a prior art rejection, but narrower in another aspect completely unrelated to the rejection, the recapture rules bars the claim." Id. at 1470, 45 USPQ2d at 1164. As already noted above, claims 24-104 of Lin's reissue application are broader than the patent claims because they do not include the "generally fixed" spot size limitation. Also as noted above, the applicant admitted that this limitation is germane to the prior art rejection. Therefore, claims 24-104 of Lin's reissue application should be barred. Similarly, claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93 and 95-104 of the Lin reissue application should be barred because they do not include the "ablation rate of 0.05-0.5 μm/pulse" limitation, which is germane to the prior art rejection. Also, claims 24-47, 69-80, 82-86, 89 and 91-104 of the Lin reissue application should be barred because they do not include the "galvanometer" limitation, which is germane to the prior art rejection.

Furthermore, none of reissue claims 24-104 include limitations that narrow the scope of claims 24-104 compared to the patent claims in a manner relevant to the prior art rejections.

III. Conclusions

Claims 24-104 of Lin's reissue application are barred by the recapture rule because they do not include the "generally fixed" spot size limitation.

Claims 24-35, 37-44, 46-63, 65-77, 82-89, 91-93, 95-104 of the Lin reissue application are barred by the recapture rule because they do not include the "ablation rate of 0.05-0.5 μm/pulse" limitation.

Claims 24-47, 69-80, 82-86, 89, 91-104 of the Lin reissue application are barred by the recapture rule because they do not include the "galvanometer" limitation.

ATTACHMENT 3 - LACK OF WRITTEN DESCRIPTION SUPPORT

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I. No Support for Claiming Removing 0.05 - 0.5 Micron Per Laser Pulse

The original claims in the Lin patent and many of the reissue claims define removing 0.05 - 0.5 microns per pulse. However, there is no support in specification of the Lin patent or the Lin reissue application for that range.

II. Relevant Facts

A. Disclosed Ablation Per Pulse in the Parent '617 Application

Lin filed the 985,617 application on December 03, 1992.

The Brief Description of the Drawings in the '617 application as filed indicates that Figures 6A through 6D show beam overlap and scanning patterns for myopic, hyperopic, and astigmatic corrections. Figures 6A-6D each show circles overlapped in various patterns, presumably each circle representing a beam spot.

Page 20 line 31 to page 23 line 29 in the '617 application refer to Figures 6A-6D, and this passage of text discusses the effect on a surface of ablating it with overlapping beam spots, beam control to provide a desired ultimate surface contour, and experimental results using UV lasers on the polymer PMMA. No experimental results on actual tissue are disclosed in this passage of text.

Page 22 lines 17-22 in the '617 application state that:

> Still referring to Figs. 6, using the UV lasers (193, 210 and 213 nm) I have achieved ablation depths of (200-400) microns by overlapping (100-200) laser pulses, which give an ablation depth of 9.2 - 0.4 microns per pulse.

*In fact, 200-400 micron depth ablations from 100-200 laser pulses provides a range of **1-4 microns of ablation per pulse**, not the 9.2 - 0.4 recited range.*

Page 23 line 30 to page 24 line 19 in the '617 application refer to Figs. 7A and 7B, and this passage of text discusses the procedure of "laser radial keratectomy."

Page 24 lines 5-11 (emphasis supplied) state that:

> Corneal reshaping may be performed by controlling the laser parameters such as spot size, intensity, scanning speed, beam overlap, and the excision depth per pulse which typically ranges from 0.2 to 0.5 microns. The excision depth precision of a laser is at least 10 times better than that of a knife. This "laser-knife" should be able to perform....

B. Disclosed Ablation Per Pulse in the CIP '319 Application

Lin abandoned the '617 application in favor of 218,319 continuation-in-part application that was filed March 25, 1994

Page 12 lines 14-17 in the '319 application indicate that Figures 6A-6D disclose beam overlap and scanning patterns for myopic, hyperopic an astigmatic corrections.

Page 12 lines 18-20 disclose that Figures 7A and 7B show laser radial keratectomy patterns using laser excision for myopia (radial cut) and astigmatic (t-cut) treatment.

Page 25 line 4 to page 27 line 25 refer to Figures 6A-6D. In that section, page 26 lines 23-27 states that:

> Still referring to Figs. 6, using the UV lasers (193, 210 and 213 nm) I have achieved ablation depths of (20-40) microns by overlapping (2000 - 4000) laser pulses, which give an ablation rate of 0.05 - 0.1 microns per pulse.

In fact, 20-40 micron depth ablations from 2000-4000 laser pulses provides a range of ***.005 to .02 microns of ablation per pulse****, not the 0.05 - 0.1 recited range.*

Page 28 lines 3-26 refer to Figures 7A-B.

Page 28 lines 12-16 state that:

> Corneal reshaping may be performed by controlling the laser parameters such as spot size, intensity, scanning speed, beam overlap, and the excision depth per pulse which typically ranges from 0.2 to 0.5 microns. The excision depth precision of a laser is at least 10 times better than that of a knife. This "laser-knife should be able to perform ....

No claim originally filed in the '319 application recited an ablation depth per pulse limitation.

37 CFR 1.122(b)(2)(C) provides that amendments to patent claims must underline the words added via amendment into the claims.

On August 17, 1995, Lin filed an amendment in response to the office action in the '319 application mailed April 04, 1995.

In the August 17, 1995 amendment, Lin re-presented claim 1 in amended form bracketing certain words and underlining other words. However the last paragraph of re-presented claim 1 was not present in the originally presented claim 1, and it was not underlined in the amendment. That improperly added paragraph reads:

> removing *from 0.05 to .5 microns of corneal tissue per puls*e overlapped to remove tissue to a desired depth, whereby a patient's vision is corrected by reshaping of the corneal surface of the patient's eye. [Italics added for emphasis.]

III. Reasons Why the Lin Reissue Application's Claims are Not Supported

A. The Contradictory Data and Inaccurate Calculations in Lin's Specification Indicate No Possession of any Ablation Per Pulse Range

First, note that the dramatically different ablation per pulse ranges asserted in Lin's specification for the Figures 6A-D embodiment and the Figures 7A-B embodiment indicates that there are two entirely different procedures involved. Attention is now directed to the Figures 6A-D embodiment.

Lin's alleged actual ablations depth per pulse in the parent and the CIP applications are contradictory. In the parent application, Lin alleged ablation 200-400 microns deep by overlapping 100-200 pulses. In the CIP application, Lin alleged ablation 20-40 microns deep by overlapping 2000-4000 pulses for the same embodiment, the embodiment of Figures 6A-D. The fact that Lin's depth per pulse in the CIP application is two orders of magnitude smaller than the depth per pulse from in the parent application raises an inference to one of ordinary skill in the art reading these applications that Lin was guessing at the actual depth per pulse in both applications. The fact that the ablation depth and the number of pulses disclosed for the embodiment of Figures 6A-D in each application do not comport with the range of depth per pulse alleged in each application provides one of ordinary skill in the art a conviction that none of those numbers are reliable. Accordingly, the Lin applications do not convey to one of ordinary skill in the art that Lin was in possession of knowledge of the actual ablation depth per pulse. What an application would have conveyed to one of ordinary skill in the art is the test for adequate written description support under the first paragraph of 35 USC 112. Ex parte Harvey, 3 USPQ 2d 1626 (BPAI 1986).

Moreover, the facts (1) that Lin improperly did not underline the ablation per pulse recitation in the amended version of claim 1 in the CIP application, (2) that that amendment was the first time that Lin claimed an ablation per pulse limitation, and (3) that Lin argued the importance of the ablation per pulse limitation in the remarks in that amendment collectively raise the inference that Lin did not underline the ablation depth per pulse limitation to avoid alerting the examiner to check for support for that newly claimed limitation. That inference supports the conclusion that one of ordinary skill in the art would not have considered Lin to be in possession of a method that provided 0.05 to 0.5 microns ablation per laser pulse. The examiner should note that this argument is not in support of an assertion of inequitable conduct (although that may be inferred from this conduct), and therefore clear and convincing evidence of Lin's intent is not necessary for the examiner to conclude that the inference is appropriate.

Lin may argue that, despite the errors in its CIP specification, the application does disclose at page 26 line 26 the ablation per pulse range of 0.05 to 0.1 microns ablation per pulse, and argue that that disclosure supports the lower end of the claimed 0.05 to 0.5 microns ablation per pulse range. However, Lin's specification indicates that the .05 to 0.1 range was a calculational error based upon miscalculation of the ablation per pulse using the disclosed 20-40 micron deep ablation and the 2000-4000 pulses (page 26 line 25). One of ordinary skill in the art would have known that raw data is more accurate that calculated numbers, and upon seeing the discrepancy in the specification between the recited 0.05 - 0.1

microns per pulse and data actually indicating 0.005 to 0.02 microns per pulse, would have (assuming that they believed anything at all about Lin's ablation depth per pulse assertions) concluded that the recited range was incorrect and that the actual range indicated by the data was 0.005 to 0.02 microns per ablation per pulse.

If the examiner agrees that there was an obvious error in Lin's specification, then a claim to a lower range limit of 0.05 is not supported for the same reason that an obvious error in a specification can be corrected. That is, the specification cannot support both claiming the error and what was obviously meant by the error. Cf. Bloch v. Sze, 484 F.2d 1202, 1205, 179 USPQ 374, 377 (CCPA 1973)(The argument that there was an "obvious error in that figure which would be recognized and corrected by one skilled in the art" supporting claims was not rejected by the CCPA.); In re Juillard, 476 F.2d 1380, n.2, 177 USPQ 570, n.2 (CCPA 1973)("The board stated that this recited lower limit was an 'obvious error' and presumed for purposes of the appeal that the correct range is 0.5-10 percent. We have also so assumed."); In re Yale, 434 F.2d 666, 668-669, 168 USPQ 46, 48-49 (CCPA 1970)("It is our opinion that not only is the listing of CF 3CF 2CHClBr in Clements [reference] a typographical error but also this fact would be apparent to one of ordinary skill in the art when reading the Clements article. Since it is an obvious error, it cannot be said that one of ordinary skill in the art would do anything more than mentally disregard CF 3CF 2CHClBr as a misprint or mentally substitute CF 3CHClBr in its place."); and In re Oda, 443 F.2d 1200, 1206, 170 USPQ 268, 272 (CCPA 1971)("On all the evidence, we conclude that one skilled in the art would appreciate not only the existence of error in the specification but what the error is. As a corollary, it follows that when the nature of this error is known it is also known how to correct it. We therefore disagree with the board's first conclusion that the change of 'nitrous' to 'nitric' is 'new matter.'").

B. There is No Support For the Lower End of the Claimed Ablation Per Pulse Range

Finally, Lin's claimed recitation "0.05 - .5" microns ablation per pulse strives from two different embodiments, and it is contradictory of the ranges disclosed with respect to Figures 6A-D. Figures 6A-D show large area ablations. In contrast, Figures 7A-B show straight thin line ablations for a procedure like radial keratectomy, and that type of procedure intends to cut a thin trench, not a wide area removal of material. Lin discloses no teaching that the ablation rates for wide area removal and trench cutting would be the same. In fact, Lin discloses incompatible ablation per pulse ranges for those two different types of procedures. For the Figure 6A-D procedure, Lin specification discloses 0.005 - 0.02 microns per pulse (the ratio of the 20-40 microns of ablation provided by the 2000-4000 pulses) and (recites a "0.05 - 0.1" range for that procedure). For the trench cutting Figures 7A-B embodiment, Lin discloses an ablation per pulse of 0.2-0.5 microns. Even taken in its best light (by assuming that Lin's Figures 6A-D discussion supports a range of 0.05 to 0.1), Lin's disclosure does not disclose ablation depth per pulse in the 0.1 to 0.2 microns range for either the Figures 6A-D or 7A-B embodiments. Given that Lin's disclosure for the Figures 6A-D embodiment actually only discloses an upper limit of 0.02 microns ablation per pulse, Lin's disclosure does not support either the end point or the lower portion of the claimed range of 0.05 to 0.5 microns per pulse.

Accordingly, for all of the foregoing reasons, Lin's application does not support the claimed range of 0.05 - 0.5 microns per pulse.

IV. Conclusion

All claims in the Lin reissue application, including the original claims, that recite an ablation depth per pulse range of 0.05 to 0.5 should be rejected for noncompliance with the first paragraph of 35 USC 112. These claims are claims 1-23, 36, 45, 64, 78-81, 90, and 94.

ATTACHMENT 4 - UNPATENTABILITY OVER PRIOR ART

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III. 35 USC 103 Obviousness 4

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B. Combination 2; Reference 1 or 2 Combined with Reference 6 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1990 Ren et al. Publication) 5

C. Combination 3; Reference 1 or 2 Combined with Reference 7 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1991 Gailitis et al. Publication) 6

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I. Introduction

This attachment gives in section II explanations of why certain references anticipate certain claims and in section III why certain combinations of references render certain claims obvious within the meaning of 35 USC 103. A table giving the relevant teachings of each prior art references is given in section IV. Claim charts identifying the prior art teachings anticipating claims in the Lin reissue application are given in Section V.

II. 35 USC 102 Anticipation

Claims 24, 28, 33, 37, 38 and 91-93 are anticipated by Reference 1: US 4,718,418 to L'Esperance: "Apparatus for Ophthalmological Surgery." Claim chart V-A of section V at page 20 of this attachment shows that every element defined by these claims is disclosed in the L'Esperance '418 patent.

Claims 24, 28, 33, 37, 38 and 91-93 are anticipated by Reference 2: US 4,665,913 to L'Esperance: "Apparatus for Ophthalmological Surgery." Claim chart V-B of section V of this attachment shows that every element defined by these claims is disclosed in the L'Esperance '913 patent.

Claims 24-31, 33, 34, 36, 38, 39, 40, 42, 43, 45, 47, 69-71, 73, 76-79, 91-96 are anticipated by Reference 5: Ren et al., "Corneal Refractive Surgery Using An Ultra-violet (213 nm) Solid State Laser", Proceedings of Ophthalmic Technologies, SPIE Vol. 1423, 21-22 Jan 1991, p. 129. Claim chart V-C of section V of this attachment shows that every element defined by these claims is disclosed in the 1991 Ren et al. publication.

Claims 24-32, 36, 39-43, 45, 78, 79, 91-98 are anticipated by Reference 6: Ren et al., "Ablation of the Cornea and Synthetic Polymers Using a UV (213 nm) Solid-State Laser", IEEE Journal of Quantum Electronics Vol. 26, No. 12 Dec 1990, pp. 2284-2288. Claim chart V-D of section V of this attachment shows that every element defined by these claims is disclosed in the 1990 Ren et al. publication.

Claims 24-31, 33, 34, 36, 38-40, 42-43, 45, 47, 78, 79, 91-96 are anticipated by Reference 7: Gailitis et al, "Solid State Ultraviolet Laser (213 nm) Ablation of the Cornea and Synthetic Collagen Lenticules", Lasers in Surgery and Medicine 11:556-562 (1991). Claim chart V-E of section V of this attachment shows that every element defined by these claims is disclosed in the 1991 Gailitis et al. publication.

Claims 39-41, 45, 91-98 are anticipated by Reference 8: Lin "A Multiwavelength Solid State Laser for Ophthalmic Applications", Proceedings of Ophthalmic Technologies II, SPIE Vol. 1644, 19-21 Jan 1992, p. 266. Claim chart V-F of section IV of this attachment shows that every element defined by these claims is disclosed in the 1992 Lin publication.

III. 35 USC 103 Obviousness

The following combinations of references render obvious the following claims of the Lin reissue application:

A. Combination 1; Reference 1 or 2 Combined with Reference 5 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1991 Ren et al. Publication)

Claims 24-31, 33, 34, 36-40, 42, 43, 45-47, 69-71, 73-79, 82, 84-86, 91-96 are obvious in view of Combination 1: Refs. 1 or 2 combined with Ref. 5.

Refs. 1 and 2 explicitly teach all the limitations of the above claims (see Section IV of this attachment), except for (1) an energy level per pulse no greater than 10 mJ, and (2) an ablating rate of 0.05-0.5 µm/pulse. However, Ref. 5 teaches (1) and (2). See page 130, 1st and 3rd paragraph. Moreover, Ref. 5 states that solid state lasers are easier to use and maintain than gas lasers (see page 129, 4th paragraph). Reference 5 further states that "[u]se of a rapid pulsed solid state laser may facilitate the development of a high speed scanning spot delivery system capable of locally neutralizing refractive errors on the corneal surface" (see page 131, 5th paragraph). It would have been obvious for one of ordinary skill in the art to modify the device taught in Refs. 1 and 2 by replacing the excimer laser with a solid state laser as taught in Ref. 5 because (a) Refs. 1 and 2 state that other laser sources are possible alternatives (see Ref. 1 column 3, lines 65-68), and (b) one of ordinary skill in the art would want to use lasers that are easier to use and maintain, and that are capable of locally neutralizing refractive errors on the corneal surface.

Furthermore, Ref. 5 teaches that employing (1) an energy level per pulse no greater than 10 mJ and (2) an ablating rate of 0.05-0.5 µm/pulse allows ablating the surface of the cornea "into any desired new shape without limitation to correcting only spherical or cylindrical surfaces." Page 129, 4th full paragraph. It would have been obvious for one of ordinary skill in the art to set the solid state laser parameters to obtain (1) and (2) and a skilled artisan would have been motivated to combine these teachings because ablating the surface of the cornea into any desired new shape without limitation to correcting only spherical or cylindrical surfaces is an improvement over the prior art.

Regarding claims 69-71, 73-78, Refs. 1-2 do not explicitly teach a random overlapping as recited in claim 69, but Fig. 1 of Ref. 5 shows a randomly overlapping pattern of scanned slits. See lower right part of Fig. 1, where the three overlapping portions are not equal and following no apparent mathematical expression, thus inherently teaching a random pattern. Figure 1 refers to corneal ablation performed using an excimer laser. Moreover, Refs. 1 and 2 teach that the excimer laser scanning is performed to obtain the desired corneal corrections. It would have been obvious for one of ordinary skill in the art to scan the cornea in a randomly overlapping pattern as taught in Ref. 5 in order to obtain a particular desired corneal correction.

Regarding claims 82, 84-86, Refs. 1-2 do not explicitly teach a smooth corneal tissue, but Fig. 3 of Ref. 5 shows smooth ablation of the corneal tissue. Therefore, it would have been obvious for one of ordinary skill in the art to modify the devices taught in Refs. 1-2 to obtain a smooth corneal surface and a skilled artisan would have been motivated to combine these teachings because a smooth corneal surface would obviously be beneficial to a patient.

B. **Combination 2; Reference 1 or 2 Combined with Reference 6 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1990 Ren et al. Publication)**

Claims 24-33, 36-43, 45-46 78, 79, 83, 91-98 are obvious in view of Combination 2: Refs. 1 or 2 combined with Ref. 6.

Refs. 1 and 2 explicitly teach all the limitations of the above claims (see Section IV of this attachment), except for (1) an energy level per pulse no greater than 10 mJ, (2) an ablating rate of 0.05-0.5 μm/pulse, and (3) successive laser pulses overlapping at least 50%. However, Ref. 6 teaches (1), (2) and (3). Specifically, (1) is taught at page 2285, column 1, lines 17-28, and (2) is taught at page 2285, column 1, last 2 lines to column 2, line 5. Regarding (3), Ref. 6 teaches at page 2285, column 1, lines 17-22 and in Fig. 1, a 0.2 mm in diameter spot moving at 0.1 mm/s across the cornea and pulsing at 10 Hz, therefore inherently teaching successive laser pulses overlapping at least 50%.

Moreover, Ref. 6 gives several advantages of using solid state lasers as opposed to excimer lasers (see Introduction section). For example, Ref. 6 states that solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using the state-of-the-art scanning technology." Page 2284, column 2, lines 5-8. It would have been obvious for one of ordinary skill in the art to modify the device taught in Refs. 1 and 2 by replacing the excimer laser with a solid state laser as taught in Ref. 6 because (a) Refs. 1 and 2 state that other laser sources are possible alternatives (see Ref. 1 column 3, lines 65-68), and (b) one skilled in the art would want to scan the cornea in "any pattern desired" because it would provide great flexibility when performing corneal refractive surgery.

Furthermore, Ref. 6 teaches that employing (1) an energy level per pulse no greater than 10 mJ, (2) an ablating rate of 0.05-0.5 μm/pulse and (3) successive laser pulses overlapping at least 50% provides "the ability to custom contour a surface to any desired shape without limitation to spherical or cylindrical correction." Page 2287, column 1, last paragraph to column 2, first full paragraph. It would have been obvious for one of ordinary skill in the art to set the solid state laser parameters to have the ability to "custom contour" the corneal surface "in any desired shape" because it would provide great flexibility when performing corneal refractive surgery.

C. **Combination 3; Reference 1 or 2 Combined with Reference 7 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1991 Gailitis et al. Publication)**

Claims 24-31, 33-34, 36-40, 42-43, 45-47, 78, 79, 91-96 are obvious in view of Combination 3: Refs. 1 or 2 combined with Ref. 7.

Refs. 1 and 2 explicitly teach all the limitations of the above claims (see Section IV of this attachment), except for (1) an energy level per pulse no greater than 10 mJ, and (2) an ablating rate of 0.05-0.5 μm/pulse. However, Ref. 7 teaches (1) and (2). See page 557, column 2, lines 1-15 and page 558, column 1, fourth full paragraph.

Moreover, Ref. 7 gives motivation to replace an excimer laser with a solid state laser (see Introduction). For example, Ref. 7 states that solid state lasers are "more compact, mobile, relatively maintenance free." It would have been obvious for one of ordinary skill in the art to modify the device taught in Refs. 1 and 2 by replacing the excimer laser with a solid state laser as taught in Ref. 7 because (a) Refs. 1 and 2 state that other laser sources are possible alternatives (see Ref. 1 column 3, lines 65-68), and (b) one skilled in the art would want to use a more compact, mobile and relatively maintenance free laser.

Furthermore, Ref. 7 teaches that employing (1) an energy level per pulse no greater than 10 mJ and (2) an ablating rate of 0.05-0.5 μm/pulse allows "correcting spherical and astigmatic refractive errors and to smooth irregular corneas." Page 562, first full paragraph. It would have been obvious for one of ordinary skill in the art to set the solid state laser parameters to obtain (1) and (2) because one skilled in the art would want to obtain a smooth corneal surface after performing a corneal refractive surgery.

D. **Combination 4; Reference 1 or 2 Combined with Reference 8 (The L'Esperance '418 Patent or the L'Esperance '913 Patent Combined With the 1992 Lin Publication)**

Claims 24, 28, 33, 37-41, 45, 91- 95, 97-98 are obvious in view of Combination 4: Refs. 1 or 2 combined with Ref. 8.

Refs. 1 and 2 explicitly teach all the limitations of the above claims (see Section IV of this attachment), except for (1) an energy level per pulse no greater than 20 mJ, (2) an ablating rate of 0.05-0.5 μm/pulse, and (3) successive laser pulses overlapping at least 50%. However, Ref. 8 teaches (1), (2) and (3). See page 270, 1st paragraph for (1), see Fig. 3, page 271 for (2), and see page 273, 1st paragraph (ii) for (3).

Moreover, Ref. 8 states that the disclosed solid state laser "offers the ophthalmologist significant advantages over the excimer lasers for corneal sculpting: reduced size and weight, lower cost, lower maintenance, compact and portable, and the absence of toxic gas." Page 269, 5th full paragraph. It would have been obvious for one of ordinary skill in the art to

modify the device taught in Refs. 1 and 2 by replacing the excimer laser with a solid state laser as taught in Ref. 8 because (a) Refs. 1 and 2 state that other laser sources are possible alternatives (see Ref. 1 column 3, lines 65-68), and (b) one skilled in the art would want to use a laser that has reduced size and weight, lower cost, lower maintenance and that is compact and portable.

Furthermore, Ref. 8 teaches that (1) an energy level per pulse no greater than 20 mJ, (2) an ablating rate of 0.05-0.5 μm/pulse, offer an increase precision during corneal ablation (see page 272, lines 17-20), and (3) successive laser pulses overlapping at least 50% eliminates pulse-to-pulse instabilities (see page 269, lines 10-13). It would have been obvious for one of ordinary skill in the art to set the solid state laser parameters to obtain (1), (2) and (3) because on skilled in the art would want an increased precision and a stable laser beam while performing corneal surgery.

E. Combination 5; Combination 1, 2, 3 or 4 Combined with Reference 3 (Combination 1, 2, 3 or 4 Combined With the Bille '679 Patent)

Claims 48-51, 53-62, 64-68, 80-87, 89 and 90 are obvious in view of Combination 5: Combinations 1, 2, 3 or 4 combined with Ref. 3.

Combinations 1, 2, 3 and 4 teach all the limitations of the above claims except for a galvanometer. However, Ref. 3 teaches a galvanometer for controlling the scanning of a laser used for corneal examination. See Fig. 1 and column 5, lines 45-61. Furthermore, Ref. 3 teaches that the galvanometer allows a controlled X-Y scanning. See column 5, lines 45-61. It would have been obvious for one of ordinary skill in the art to control the laser scanning as taught in combinations 1, 2, 3 and 4 using a galvanometer as taught in Ref. 3 in order to provide a controlled X-Y scanning of the laser beam on the cornea.

Regarding claims 80 and 89, the galvanometer of Ref. 4 includes pivotal mirrors configured to deflect a laser beam at an angle and to scan the laser in the X-Y plan. For the same reason as noted above, it would have been obvious to modify the systems taught in combinations 1, 2, 3 or 4 by including a galvanometer with pivotal mirrors. Therefore, combination 5 renders obvious claims 80 and 89.

F. Combination 6; Combination 5 Combined With Reference 9 (Combination 5 Combined With the 1989 Chapter 24 L'Esperance Reference)

1. Claims 1, 3-4, 10, 15-18 and 23

Claims 1, 3-4, 10, 15-18 and 23 are obvious in view of Combination 6: Combination 5 combined with Ref. 9.

Combination 5 teaches all the limitations of the above claims except for (1) an aiming mechanism. However, Ref. 9 teaches an aiming mechanism for aligning the laser beam during corneal surgery. See Figs. 24.11, 24-18 and 24-30. Therefore, it would have been obvious for one of ordinary skill in the art to align the laser beam taught in combination 5 with the aiming mechanism taught in Ref. 9 to help the surgeon aim and align the ablating laser beam on the cornea.

2. **Claim 8**

Claim 8 is also obvious in view of Combination 6. Combination 5 teaches all the limitations of claim 8 except for an Er:YAG laser. However, Ref. 9 teaches that using Er:YAG for corneal surgery is well known in the art. See page 920, lines 13-15.

A 50-400 ns pulse is well known in the art and would have been obvious to achieve a greater ablation power.

G. **Combination 7; Combination 6 Combined With Reference 10 (Combination 6 Combined With the 1989 Chapter 26 L'Esperance Reference)**

Claims 2 and 52 are obvious in view of Combination 7: Combination 6 combined with Ref. 10.

Combination 6 teaches all the limitations of claims 2 and 52, except a diode pumped laser. A diode pumped laser is well-known in the art. Ref. 10 gives the motivation for using a diode-pumped laser to perform corneal surgery because such laser would increase the overall efficiency and reduce the size of the system. See page 1028, 2nd paragraph.

H. **Combination 8; Combination 6 Combined With Reference 4 (Combination 6 Combined With the 1988 Hanna et al. European Application)**

Claims 35, 44, 63 and 88 are obvious in view of Combination 8: Combination 6 combined with Ref. 4.

Combination 6 teaches all the limitations of the above claims except for (1) scanning the laser synchronously with the laser pulses. However, Ref. 4 teaches synchronizing the laser beam pulses with the beam displacement. See page 6, lines 8-10 and Fig. 3a (means 5). Moreover, Ref. 4 teaches that the synchronization allows for corneal scanning of mathematically calculated patterns, which is useful for correcting specific corneal defects. See for example claims 7-12. It would have been obvious for one of ordinary skill in the art to synchronize the laser beam pulses with the beam displacement in order to produce mathematically calculated ablation patterns on the cornea correct corneal to correct specific

defects.

I. Combination 9; Combination 6 Combined With Prior Art Admitted as Such by Lin in the Lin '679 Patent

Claims 5, 7, 12-14, 99-101 are obvious in view of Combination 9: Combination 6 combined with Lin's '679 admitted prior art. A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness. In re Nomiya, 509 F.2d 566, 571 n.5 [sic], 184 USPQ 607 , 611 n.4 (CCPA 1975).

1. Claims 5 and 7

Combination 6 teaches all the limitations of claims 5, and 7, except for (1) an Ho:YAG laser, and (2) a 1.9-2.5 µm laser radiation. However, Ho:YAG (2.1 µm) lasers are well known in the art and it would have been obvious to one of ordinary skill in the art to use one. See the Lin' 679 patent's admitted prior art at column 1, line 29.

Regarding the 0.5-5 Watts average power, Ref. 5 teaches a 10 Hz, 50 mJ/pulse laser which inherently teaches an average power of 0.5 Watts. See page 130, 1st paragraph. It would have been obvious to use a 0.5-5 Watts average power in order to achieve a desired level of ablation on the cornea.

2. Claims 12-14, 99-101

Combination 6 teaches all the element of Claims 12-14, 99-101 except for an infrared laser beam capable of coagulation corneal tissue. However, the Lin '679 patent's admitted prior art teaches that corneal coagulation using an IR laser (HO:YAG, 2.1 µm) is well known in the art. See Lin '679 at column 1, lines 28-30. Therefore it would have been obvious for a person of ordinary skill in the art to use an IR laser to perform corneal coagulation to reshape the cornea as taught in Lin '679 at column 1, line 28.

J. Combination 10; Combination 9 Combined With Reference 10 (Combination 9 Combined With the 1989 Chapter 26 L'Esperance Reference)

Claims 102 and 104 are obvious in view of Combination 10: Combination 9 combined with Ref. 10.

Combination 9 teaches all the elements of claims 102 and 104, except for a diode laser beam having a 10-100 mWatt average energy. However, Ref. 10 teaches a diode laser beam with an average power of 100 mWatt for photocoagulation (see page 1025, line 6). It would have been obvious to one of ordinary skill in the art to use a power level of 10-

100 mWatt because that range covers the value for the average power of commercially available diode lasers (see page 1025, line 6) and one of ordinary skill in the art would be motivated to use such diode lasers because of their low price (see page 1028, lines 25-28).

K. Combination 11; Combination 6 Combined With What is Well Known in the Art

Claims 6, 9, 11, 19-21 and 103 are obvious in view of Combination 11: Combination 6 combined with what is well known in the art.

1. Claims 6 and 103

All the limitations of claims 6 and 103 are taught by Combination 6, except for an Er:Glass (1.5 μm) laser. However, Er:Glass lasers radiating at 1.5 μm are well known in the art. It would have been obvious for a person of ordinary skill in the art to modify the devices and/or methods taught in Combination 6 by using an Er:Glass laser because it would give an additional wavelength range at which to perform corneal surgery, thereby providing an additional option in the adjustment of the thermal penetration depth in the corneal tissue to better tailor the needs of a specific procedure. See for example, Ref. 8 at page 269, 4th full paragraph.

2. Claim 9

All the limitations of claim 9 are taught by Combination 6, except for (1) a laser beam with an average energy of 0.01 to 100 μJ/pulse and (2) a pulse duration of 0.05-10 picoseconds. However, such values are well known in the art and would have been obvious to a person of ordinary skill in the art desiring a particular ablation power to correct a particular corneal defect.

3. Claim 11

All the limitations of claim 11 are taught by Combination 6, except for a lens with a focal lens of (50-1500) mm. However, lenses with a focal lens of (50-1500) mm are well known in the art. It would have been obvious for a person of ordinary skill in the art to modify the devices and/or methods taught in Combination 6 by using a lens with a focal lens of (50-1500) mm in order to properly focus the laser beam onto the cornea to a desired spot size. See for example Ref. 1 column 4, lines 13-15.

4. Claims 19-21

All the limitations of claims 19-21 are taught by Combination 6, except for a coated window. However, such coated windows are well known in the art. It would have been

obvious for a person of ordinary skill in the art to modify the devices and/or methods taught in Combination 6 by including the claimed window in order to let through the radiation intended to perform the corneal ablation.

IV. Relevant Teachings Provided by Each Prior Art Reference

Relevant prior art and their relevant teachings are identified below.

REF. NO.	REFERENCE (102 date)	RELEVANT TEACHING
1	US 4,718,418 to L'Esperance: "Apparatus for Ophthalmological Surgery" 102(b) date January 12, 1988. Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	Teaches a scanning laser emitting in the ultraviolet range to achieve controlled ablative photodecomposition of regions of the cornea. See abstract. The scanning is controlled to correct myopic and hyperopic conditions, astigmatism and to perform incisions of a radial or other keratotomy. See Column 2, lines 30-43. Teaches using lasers emitting UV radiation. Column 3, lines 59-60.
1	Continued	Teaches gas-lasers such as xenon-fluoride, nitrogen, xenon-chloride, krypton-fluoride, argon-fluoride, and fluorine lasers can be used. See Column 3, lines 61-64. Teaches that other lasers, including crystal lasers, provide further alternative sources. Column 3, lines 65-68. Figs. 3 and 4 show linear and circular scans respectively. These scans are performed by repetitively pulsing a laser beam spot on the surface of the eye. See Column 4, lines 21-29.
1	Continued	Overlapping is inherent to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 5, lines 2-10. See also claim 1, last 3 lines, reciting a plurality of overlapping scans.

1	Continued	Teaches a method to ablate the cornea of a patient to enhance the patient's comfort. See Column 9, lines 1-8. If the cornea was not smooth to some degree, the patient's comfort would not be improved. Therefore, Ref. 3 inherently teaches achieving a smooth ablation of the corneal tissue. "The delineation can be to the surgeon's desired boundary contours, and the scan speed and direction may be programmed." Ref. 2 is therefore teaching a computer controlled (programmed) scanning. Column 4, lines 36-39.30-33. See also fig. 13 showing a microprocessor coupled to the scanner.
1	Continued	The maximum energy/pulse used is 200 mJ, the pulse repetition is 200 Hz.. Column 4, lines 5-6. "Irradiated flux density and exposure time are so controlled as to achieve desired depth of the ablation . . the scanning action is coordinated to achieve desired ultimate surface change in the cornea." See abstract. Teaches typical pulse duration of 15 ns. Column 4, line 11. Teaches focusing the laser beam on the surface of the eye. Column 4, lines 13-15. Teaches a typical spot size of 0.5 mm. Column 4, lines 13-15.
1	Continued	Teaches circular scan patterns. Column 6, lines 2-6. Teaches concentric circle scan patterns. Column 9, lines 40-52. Fig. 10 shows radial scan patterns. Column 6, lines 22-28. Teaches a laser-pumped laser. Column 7, lines 9-13.

2	US 4,665,913 to L'Esperance: "Apparatus for Ophthalmological Surgery" 102(b) date May 19, 1987. Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	Teaches a scanning laser emitting in the ultraviolet range to achieve controlled ablative photodecomposition of regions of the cornea. See abstract. The scanning is controlled to correct myopic and hyperopic conditions, astigmatism and to perform incisions of a radial or other keratotomy. See Column 2, lines 24-38. Teaches using lasers emitting UV radiation. Column 3, lines 53-54. Teaches gas-lasers such as xenon-fluoride, nitrogen, xenon-chloride, krypton-fluoride, argon-fluoride, and fluorine lasers can be used. See Column 3, lines 55-58. Teaches that other laser, including crystal lasers, provide further alternative sources. Column 3, lines 60-62.
2	Continued	Figs. 3 and 4 show linear and circular scans respectively. These scans are performed by repetitively pulsing a laser beam spot on the surface of the eye. See Column 4, lines 15-23. Overlapping is inherent to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 4, line 64 to column 5, line 4. See Column 5, lines 2-10. See also claim 1, last 3 lines, reciting a plurality of overlapping scans.
2	Continued	Teaches a method to ablate the cornea of a patient to enhance the patient's comfort. See Column 9, lines 1-8. If the cornea was not smooth to some degree, the patient's comfort would not be improved. Therefore, Ref. 3 inherently teaches achieving a smooth ablation of the corneal tissue. "The delineation can be to the surgeon's desired boundary contours, and the scan speed and direction may be programmed or manually controlled." Ref. 2 is therefore teaching a computer controlled (programmed) scanning. Column 4, lines 30-33. See also fig. 13 showing a microprocessor coupled to the scanner.

2	Continued	The maximum energy/pulse used is 200 mJ, the pulse repetition is 200 Hz. Column 3, lines 63-68. "Irradiated flux density and exposure time are so controlled as to achieve desired depth of the ablation . . the scanning action is coordinated to achieve desired ultimate surface change in the cornea." See abstract.
2	Continued	Teaches typical pulse duration of 15 ns. Column 4, line 5. Teaches a typical spot size of 0.5 mm. Column 4, lines 7-9. Teaches circular scan patterns. Column 5, lines 64-69. Teaches concentric circle scan patterns. Column 9, lines 34-46. Fig. 10 shows radial scan patterns. Column 6, lines 16-19. Teaches a laser-pumped laser. Column 7, lines 3-7.

3	United States patent No. 4,838,679 to Bille: "Apparatus for, and method of, examining eyes" 102(b) date June 13. 1989. Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	Teaches a laser scanning mechanism including a galvanometer with pivotal mirrors configured to deflect the laser beam at predetermined angles. See Fig. 1 and column 5, lines 45-61.

4	European Patent Application Publication 296,982 to Hanna et al: "Device for correcting the shape of an object by laser treatment" 102(b) December 28, 1988. Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	Teaches a synchronizing mechanism to synchronize the displacement of a laser spot on the cornea with the pulses of the laser.

5	Ren et al., "Corneal Refractive Surgery Using An Ultra-violet (213 nm) Solid State Laser", Proceedings of Ophthalmic Technologies, SPIE Vol. 1423, 21-22 Jan 1991, p. 129 102(b) date: January 22, 1991. Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	A Q-switched, Nd:YAG solid state laser is used to ablate the cornea. The system uses wavelength multiplication to get 213 nm and 266 nm wavelengths (UV). See p. 129, 5th paragraph. Flash-lamp-pumped, Nd:YAG laser, 10 Hz, 10 ns, 50 mJ/pulse at 1064 nm, gives an average power of 0.5 Watts. See page 130, 1st paragraph. 266 nm: 2.3 mJ/pulse, spot size = 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph. 213 nm: 0.4 mJ/pulse, spot size = 0.2 mm in diameter, ablation rate = 0.3 μm/pulse. See page 130, 1st and 3rd paragraph. Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" State-of-the-art technology inherently includes a computer configured to computer control the laser scanning. Page 129, 4th paragraph.

5	Continued	"Laser is scanned to create a linear excision. See page 131, 3rd paragraph. "Use of a rapid pulsed solid state laser may facilitate ... high speed scanning spot delivery system capable of locally neutralizing refractive errors on the corneal surface." See p. 131, 5th paragraph. A procedure and algorithm for calculating (predetermining) the required ablation pattern is disclosed. See p. 131.
5	Continued	Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantially overlapping pattern of fixed area spots, the overlapping being around 30%. Furthermore, the overlapping shown is random. Fig. 2 shows a lens (prism) and a window that lets the beam through. Ref. 5: Fig. 3 shows smooth ablation of the corneal tissue.

6	Ren et al., "Ablation of the Cornea and Synthetic Polymers Using a UV (213 nm) Solid-State Laser"; IEEE Journal of Quantum Electronics Vol. 26, No. 12 Dec 1990, pp. 2284-2288. 102(b) date: December 1990 Non-ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	A Q-switched, Nd:YAG solid state laser is used to ablate the cornea. The system uses wavelength multiplication to get 213 nm and 266 nm wavelengths (UV). See Abstract. Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8. Flash-lamp-pumped, Q-switched, Nd:YAG laser, 10 Hz, 10 ns, 50 mJ/pulse at 1064 nm. See p. 2284, column 2, 2nd full paragraph. 266 nm: 2.3 mJ/pulse, spot size = 1 mm in diameter. See p. 2285, column 1, lines 25-28.

6	Continued	213 nm: 0.4 mJ/pulse, spot size = 0.2 mm in diameter, ablation rate = 0.3 µm/pulse for the cornea and 0.8 µm/pulse for the synthetic lentilcules. See p. 2285, column 1, lines 17-22 and line 45 to column 2, line 2. "Nd:Yag solid-state laser (213 nm) is capable of ablating the cornea and synthetic epikeratoplastiy materials." See p. 2286, column 2, lines 1-5.
6	Continued	More UV (at 213 nm) energy (1-3) mJ may be obtained by using longer (8-9 mm) BBO crystals. See p. 2286, column 1, lines 10-11. "Much higher UV (213 nm) energy (20-50 mJ) may be achieved with multimode operation . . . should be able to generate 213 nm with energies of (10-20 mJ)." Page 2286, column 2, lines 15-24.
6	Continued	"With a fast scan mechanism, each pulse etches away a very thin layer of the tissue (submicrometer) within small area." Page 2287, lines 21-24. "[R]apid pulsed scanning UV laser system has the ability to custom contour a surface to any desired shape without limitation to spherical or cylindrical correction. This will allow correction of all optical aberrations, not just sphere and cylinder, when used for corneal sculpting or laser adjustable synthetic epikeratoplasty." Page 2287, column 2, lines 3-9. Teaches a 0.2 mm in diameter spot moving at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches successive pulses overlapping more than 50%. See page 2285, 2nd full paragraph.

7	Gailitis et al, "Solid State Ultraviolet Laser (213 nm) Ablation of the Cornea and Synthetic Collagen Lenticules", Lasers in Surgery and Medicine 11:556-562 (1991) 102(b) date: "accepted for publication on August 14, 1991." Non-ANTEDATABLE against parent application. (But see 102(b) date). Non-ANTEDATABLE against CIP	Teaches a solid state laser (a Q-switched Nd:YAG Laser at 213 nm and 266 nm) to ablate corneas and type I collagen synthetic epikeratoplasty. See abstract. A near 193 nm solid state laser could work. See page 556, column 2, lines 8-10. Pulsing frequency of 10 Hz and pulse durations of 10 ns. Page 557, column 1, second full paragraph. 213 nm: ablation rate = 0.23 μm/pulse, 1.0 μm/pulse, output energy = 0.4 mJ/pulse, 200 μm spot size. See p. 558, column 1, 4th paragraph. 266 nm: output energy = 2.3 mJ/pulse, 200 μm spot size. See page 557, column 2, lines 10-13. "Utilizing a fast pulse frequency would enable a delivery system to scan the corneal surface very rapidly with a small spot for more refined ablation profiles." Page 557, lines 1-4.
7	Continued	"[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision," thus inherently teaching 100% overlapping. Page 557, lines 25-30. "The beam could be expanded with ultraviolet transparent lenses." See page 561, lines 6-9. "A small spot is focused onto the surface of the cornea and ablates the tissue. The spot is scanned quickly to another area which is ablated." Page 561, lines 20-23.
7	Continued	"a scanning mathematically defined elliptical slit which scan across the cornea and ablates the tissue." See page 561, column 2, 2nd paragraph. "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.

7	Continued	"[The system] would be ideal to use with laser adjustable synthetic epikeratoplasty." Page 562, lines 25-26. Fig. 1 shows a lens (prism) and a window that lets the beam through. See page 557. "The most important feature of a rapidly pulsed scanning pulsed ultraviolet laser system would be the ability to correct spherical and astigmatic refractive errors to smooth irregular corneas." Page 562, 2nd paragraph.
7	Continued	If such a scanning system were linked to a computer corneal topography system, this could be effectively used to reshape the cornea or recontour synthetic epikeratoplasty lenticules." See page 557, column 1, 1st paragraph.

8	Lin "A Multiwavelength Solid State Laser for Ophthalmic Applications", Proceedings of Ophthalmic Technologies II, SPIE Vol. 1644, 19-21 Jan 1992, p. 266. 102(b) date: January 21, 1992. ANTEDATABLE against parent application Non-ANTEDATABLE against CIP	Teaches a flashed-pumped or diode-pumped Nd:YAG (or Nd:YLF) combined with frequency conversion modules producing wavelengths at 1064 nm, 532 nm, 355 nm, 266 nm, 213 nm and 210 nm, and "mid-infrared spectra". See p. 267, 3rd paragraph. "We have developed a computer controlled mathematical model which produces the required scanning patterns and beam overlapping for refractive correction on myopia, hyperopia and astigmatism." Page 267, last paragraph. 1064 nm: 800 mJ. See p. 267, 5th paragraph. 532 nm: up to 500 mJ, pulse width = 3-8 ns, spot size = 8 mm. See p. 267, 5th paragraph.
8	Continued	1064/532 nm system: Pulse duration = 250 μs or 8-10 ns, repetition = 200 Hz used to treat retinal photocoagulation, cataract, glaucoma. See p. 269, 3rd paragraph. Infrared system: (1.9-2.2) or (2.8-3.2) μm Used to treat cataract, glaucoma, refractive surgery such as hyperopia. ablation rate = 20-30 μm pulse and precision of 0.2-0.5 μm pulse. See p. 269 4th paragraph.

8	Continued	213 nm system: scanned spot = 0.2-0.5 mm, or 2-4 mm See page 267, 6th paragraph. 30-50% overlapping. Page 273, 1st paragraph (ii). "The 213 nm beam was focused by a UV-grade lens with a focal length of about ??mm for a spot size of 0.17 mm to 0.55 mm." Page 270, 1st paragraph. UV energy = 0.5-1.2 mJ/pulse. Page 270, 1st paragraph. Repetition = 10 Hz. Page 270, 1st paragraph. Fig. 3 shows ablation rate 0.15-1.0 μm/pulse. See page 271.
8	Continued	Teaches optical parametric oscillation (OPO) techniques to obtain tuning ranges of 1.7-2.4 m and 1.5-3.2 m. See page 267, 4th paragraph. Scanned a spot of 1 mm. also teaches: - a 2 mm laser spot, a 5 mJ/pulse and a 50% overlap, at 15 Hz. - a 6 mm spot, 30 mJ/pulse. See page 273, 2nd paragraph.
8	Continued	Changes in the parameters are suggested and supported by a mathematical model. See page 273-5, "SCALING LAW" A 40 mJ laser. Page 275, line 16. The beam tracking system "is incorporated into the scanning galvanometer which is computer controlled for scanning pattern and is tracked by the feed-back CCD." Page 269, 2nd paragraph.

9	L'Esperance, "Ophthalmic Lasers, Chapter 24: Corneal Laser Surgery", The C.V. Mosby Co., St. Louis (1989). 102(b) date: 1989 Non-ANTEDATABLE against parent application. Non-ANTEDATABLE against CIP	Teaches an optical system for ophthalmic surgery including a solid state laser (YAG) and an aiming mechanism using a visible aiming beam. See pages 795-7 and 798-801. An aiming systems are taught in Figs. 24.11 (page 929), 24-18 (page 942)and 24-30 (page 958) in optical systems used for corneal surgeries. Teaches lenses in Figs. 24-6 (page 925), 24-7 (page 927), 24.11 (page 929) in optical systems used for corneal surgeries, thus teaches focusing the laser beam on the cornea.

9	Continued	Teaches a partial mirror configured to let through 1064 nm light from a Nd:YAG laser being light pumped. "Several lasers have been investigated for their corneal cutting potential. These lasers have been selected on the basis of corneal absorption characteristics." They emit infrared (CO_2, HF, Er:YAG) or ultraviolet (excimer, Nd:YAG of the 5th harmonic at 212 nm) radiation. See p. 919, 2nd paragraph. "The excimer laser-corneal interaction was investigated for the first time in 1981" in a study of "the response of the corneal epithelium to krypton fluorine (KrF) excimer laser (248 nm). See p. 921, lines 4-6.
9	Continued	Use of Er:YAG laser (2.95 μm) for corneal ablation has been reported since 1986. See p.920, lines 14-16. Corneal surgery using an argon fluorine (ArF) excimer laser (193 nm) were performed in 1983. Each pulse was shown to remove 0.1 to 0.5 μm of tissue. See p. 921, lines 6-11. Cornea surgery performed with 4 and 6.6 mJ/pulse and 15-20 Hz using a ArF excimer laser. See p. 926, lines 22-23. Corneal surgery performed at 30 Hz. See page 960, line 25.
9	Continued	Cornea surgery performed with 0.4 mJ/pulse and 60 Hz using a CO_2 laser (10.6 μm). See page 925, lines 5-8. Teaches laser beams capable of photoablating corneal tissue for laser radial keratectomy. See pages 956-964.

10	L'Esperance, "Ophthalmic Lasers, Chapter 26: New Laser Systems, Their Potential Clinical Usefulness, and Investigating Laser Procedures", The C.V. Mosby Co., St. Louis (1989). 102(b) date: 1989 Non-ANTEDATABLE against parent application. Non-ANTEDATABLE against CIP	Teaches diodes lasers and suggests the use of diodes laser for ophthalmologic applications. Pages 1021-1028, inparticular page 1022, 4th paragraph. Teaches a diode laser used for photocoagulation. Pages 1025-1027. Fig. 26-30 shows overlapping spots of size of about 0.5 mm. Page 1027 Suggests a diode laser-pumped Er:YAG laser for corneal photoablation. Page 1028, 2nd paragraph. Fig. 26-33 shows a radial scanning pattern on the cornea performed for a radial keratotomy procedure. Page 1030.
10	Continued	Suggests ultraviolet and infrared lasers operated "with extremely short pulses in the nanosecond and picosecond range" to make incisions in the cornea. Page 1032, 2nd paragraph.

V. **Claim Charts Correspondence Corresponding Anticipated Claims to the Prior Art**

This section corresponds the recitations in the Lin reissue application anticipated claims in the left hand column to the teachings in the prior art in the right hand column.

A. **Claim Chart V-A: Reference 1**

Claims 24, 28, 33, 37, 38 and 91-93 are anticipated by Reference 1: US 4,718,418 to L'Esperance: "Apparatus for Ophthalmological Surgery."

24. A method for performing ophthalmic surgery, comprising:	Ref. 1 teaches a method of performing ophthalmic surgery. See abstract.
pulsing a laser beam at a repetition rate of at least 20 Hz;	Ref. 1 teaches a pulse repetition of 200 Hz. Column 4, lines 5-6.
applying said laser beam onto corneal tissue; and	Ref. 1 teaches applying a laser beam onto corneal tissue. See abstract.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Overlapping is inherent in ref. 1 to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 5, lines 2-10.
28. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 1 teaches a typical spot size of 0.5 mm. Column 4, lines 13-15.
33. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 1 teaches a pulse repetition of 200 Hz. Column 4, lines 5-6.
37. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said pulsed laser beam is scanned in circular patterns.	Ref. 1. Teaches circular scan patterns. Column 6, lines 2-6.
38. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.

said pulsed laser beam is scanned in linear patterns.	Fig. 3 shows linear scans by pulsing a laser on the surface of the cornea. See Column 4, lines 21-29.
91. A method for performing ophthalmic surgery, comprising:	Ref. 1 teaches methods for performing ophthalmic surgery. See abstract.
pulsing an ultraviolet laser beam;	Ref. 1 teaches pulsing an ultraviolet laser beam. See column 3, line 59-61 and column 4, line 6.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 1 teaches applying a pulsing ultraviolet laser beam onto corneal tissue. See abstract.
scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Overlapping is inherent in ref. 1 to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 5, lines 2-10.
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Ref. 1 teaches a pulse repetition of 200 Hz. Column 4, lines 5-6.
93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 1 teaches a pulse repetition of 200 Hz. Column 4, lines 5-6.

B. **Claim Chart V-B: Reference 2**

Claims 24, 28, 33, 37, 38 and 91-93 are anticipated by Reference 2: US 4,665,913 to L'Esperance: "Method for Ophthalmological Surgery."

24. A method for performing ophthalmic surgery, comprising:	Ref. 2 teaches a method of performing ophthalmic surgery. See abstract.
pulsing a laser beam at a repetition rate of at least 20 Hz;	Ref. 2 teaches a pulse repetition of 200 Hz. Column 3, lines 63-68.
applying said laser beam onto corneal tissue; and	Ref. 2 teaches applying a laser beam onto corneal tissue. See abstract.

scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Overlapping is inherent in Ref. 2 to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 4, line 64 to Column 5, line 4.
28. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 2 teaches a typical spot size of 0.5 mm. Column 4, lines 7-9.
33. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 2 teaches a pulse repetition of 200 Hz. Column 3, lines 63-68.
37. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said pulsed laser beam is scanned in circular patterns.	Ref. 2. Teaches circular scan patterns. Column 5, lines 64-69.
38. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said pulsed laser beam is scanned in linear patterns.	Fig. 3 shows linear scans by pulsing a laser on the surface of the cornea. See Column 4, lines 15-23.
91. A method for performing ophthalmic surgery, comprising:	Ref. 2 teaches methods for performing ophthalmic surgery. See abstract.
pulsing an ultraviolet laser beam;	Ref. 2 teaches pulsing an ultraviolet laser beam. See abstract and column 3, line 63-68.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 2 teaches applying a pulsing ultraviolet laser beam onto corneal tissue. See abstract.
scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Overlapping is inherent in ref. 2 to obtain the desired results. For example, The cornea is scanned with 25 overlapping scans. See Column 4, line 64 to Column 5, line 4..
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Ref. 2 teaches a pulse repetition of 200 Hz. Column 3, lines 63-68.

93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 2 teaches a pulse repetition of 200 Hz. Column 3, lines 63-68.

C. **Claim Chart V-C: Reference 5**

Claims 24-31, 33, 34, 36, 38, 39, 40, 42, 43, 45, 47, 69-71, 73, 76-79, 91-96 are anticipated by Reference 5: Ren et al., "Corneal Refractive Surgery Using An Ultra-violet (213 nm) Solid State Laser", Proceedings of Ophthalmic Technologies, SPIE Vol. 1423, 21-22 Jan 1991, p. 129.

24. A method for performing ophthalmic surgery, comprising:	Ref. 5 teaches a method of performing ophthalmic surgery. See title
pulsing a laser beam at a repetition rate of at least 20 Hz;	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
applying said laser beam onto corneal tissue; and	Ref. 5 teaches applying a laser beam onto corneal tissue. See page 129, last paragraph.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Ref. 5: Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantially overlapping pattern.
25. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
26. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.

27. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 50 mJ per pulse to said corneal tissue.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
28. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 5: 0.2 mm in diameter. See page 130, 1st and 3rd paragraph. 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph.
29. The method for performing ophthalmic surgery according to claim 25, wherein:	See claim 25.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 5: 0.2 mm in diameter. See page 130, 1st and 3rd paragraph. 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph.
30. The method for performing ophthalmic surgery according to claim 26, wherein:	See claim 26.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 5: 0.2 mm in diameter. See page 130, 1st and 3rd paragraph. 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph.
31. The method for performing ophthalmic surgery according to claim 27, wherein:	See claim 27.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 1: 0.2 mm in diameter. See page 130, 1st and 3rd paragraph. 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
33. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.

said laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
34. The method for performing ophthalmic surgery according to claim 25, wherein:	See claim 25.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
36. the method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 5: 213 nm: ablation rate = 0.3 µm/pulse. See page 130, 1st and 3rd paragraph.
38. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said pulsed laser beam is scanned in linear patterns.	Ref. 5: Fig. 1, bottom right shows a linear scanning of a pulsed laser beam. "Laser is scanned to create a linear excision." See page 131, 3rd paragraph.
39. The method for performing ophthalmic surgery, comprising:	Ref. 5 teaches a method for performing ophthalmic surgery. See title.
pulsing a laser beam at an energy level of no greater than 20 mJ per pulse onto corneal tissue; and	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Ref. 1: Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantially overlapping pattern.
40. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.

said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 5: 0.2 mm in diameter. See page 130, 1st and 3rd paragraph. 1 mm in diameter. See p. 130, 1st paragraph and p. 131, 1st paragraph.
42. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam is pulsed at a repetition rate of at least 20 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
43. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.
45. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 5: 213 nm: ablation rate = 0.3 µm/pulse. See page 130, 1st and 3rd paragraph.
47. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said pulsed laser beam is scanned in linear patterns.	Ref. 5: Fig. 1, bottom right shows a linear scanning of a pulsed laser beam. "Laser is scanned to create a linear excision." See page 131, 3rd paragraph.
69. Apparatus for ablating tissue, comprising:	Ref. 5 teaches an apparatus for ablating tissue. See page 129, last paragraph.
a laser adapted to emit a pulsed output beam of ultraviolet wavelength at a repetition rate of at least 20 Hz; and	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129, 4th paragraph.

a scanner constructed and arranged to control said pulsed beam into a substantially overlapping	Ref. 5: Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantially overlapping pattern.
random pattern of beam pulses on said tissue.	Ref. 5, Fig. 3 teaches a random overlapping pattern. There is no apparent order in he overlap shown in Fig. 3, thus it is random.
70. The apparatus for ablating tissue according to claim 69, wherein:	See claim 69.
said repetition rate is at least 50Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting" Page 129. 4th paragraph.
71. The apparatus for ablating tissue according to claim 69, wherein:	See claim 69.
said pulsed output beam has an energy level no greater than 10 mJ per pulse.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
73. The apparatus for ablating tissue according to claim 69, wherein:	See claim 69.
said laser has a wavelength in a range of 193 to 215 nm.	Ref. 5: 213 nm. See page 130, 1st and 3rd paragraph.
76. An ophthalmic surgery apparatus for performing corneal refractive surgery by reshaping a portion of a corneal surface, said apparatus comprising:	Ref. 5 teaches ophthalmic surgery apparatuses for performing corneal refractive surgery by reshaping a portion of a corneal surface. See title
a laser adapted to emit a pulsed laser beam of less than 20 mJ per pulse onto said corneal surface; and	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.

a computer-controlled scanning device coupled to said laser	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting." State-of-the-art technology inherently includes a computer configured to computer control the laser scanning. Page 129, 4th paragraph.
to overlap pulses of said pulsed laser beam on said corneal surface	Ref. 5: Fig. 1, bottom right shows a scanning of a pulsed laser beam in an overlapping pattern.
to achieve a smooth ablation of corneal tissue.	Ref. 5: Fig. 3 shows smooth ablation of the corneal tissue.
77. An ophthalmic surgery apparatus for performing corneal refractive surgery by reshaping a portion of a corneal surface according to claim 76, wherein:	See claim 76.
said smooth ablation results in a surface roughness of less than 1 micron.	Ref. 5: Fig. 4 shows a surface roughness of less than 1 micron.
78. A method of performing corneal refractive surgery by reshaping a portion of a corneal surface, said method comprising:	Ref. 5 teaches a method of performing corneal refractive surgery by reshaping a portion of a corneal surface. See title
substantially overlapping	Ref. 5: Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantially overlapping pattern.
a plurality of ultraviolet laser beam pulses over an area of a corneal surface	Ref. 5 teaches ultraviolet laser beam pulses over an area of a corneal surface. See page 130, last paragraph.
sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per ultraviolet laser beam pulse;	Ref. 5: 213 nm: ablation rate = 0.3 μm/pulse. See page 130, 1st and 3rd paragraph.
said laser beam pulses having an energy level of no greater than 20 mJ per pulse; and	Ref. 1: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.

said laser beam pulses having a pulse repetition rate of at least 50 pulses per second.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting." Page 129, 4th paragraph.
79. The method of performing corneal refractive surgery by reshaping a portion of the corneal surface according to claim 78, wherein:	See claim 78.
said laser beam pulses have an energy level of no greater than 10 mJ per pulse.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
91. A method for performing ophthalmic surgery, comprising:	Ref. 5 teaches methods for performing ophthalmic surgery. See title.
pulsing an ultraviolet laser beam;	Ref. 5 teaches ultraviolet laser beam pulses over an area of a corneal surface. See page 130, last paragraph.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 5 teaches ultraviolet laser beam pulses over an area of a corneal surface. See page 130, last paragraph.
scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Ref. 5: Fig. 1, bottom right shows a scanning of a pulsed laser beam in a substantial overlapping pattern on corneal tissue.
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting." Page 129, 4th paragraph.
93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.

said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers can be "rapidly pulsed (KHz range) allowing the beam to be delivered to the target in any desired pattern by using state-of-the-art scanning technology. Such a flying-spot approach may facilitate aspheric corneal sculpting." State-of-the-art technology inherently includes a computer configured to computer control the laser scanning. Page 129, 4th paragraph.
94. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per pulse.	Ref. 5: 213 nm: ablation rate = 0.3 μm/pulse. See page 130, 1st and 3rd paragraph.
95. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.
96. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said ultraviolet laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 5: 2.3 mJ/pulse. See p. 130, 1st paragraph and p. 131, 1st paragraph. 0.4 mJ/pulse. See page 130, 1st and 3rd paragraph.

D. Claim Chart V-D: Reference 6

Claims 24-32, 36, 39-43, 45, 78, 79, 91-98 are anticipated by Reference 6: Ren et al., "Ablation of the Cornea and Synthetic Polymers Using a UV (213 nm) Solid-State Laser", IEEE Journal of Quantum Electronics Vol. 26, No. 12 Dec 1990, pp. 2284-2288.

24. A method for performing ophthalmic surgery, comprising:	Ref. 6 teaches a method of performing ophthalmic surgery. See title and abstract.
pulsing a laser beam at a repetition rate of at least 20 Hz;	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.

applying said laser beam onto corneal tissue; and	Ref. 6 teaches applying a laser beam onto corneal tissue. See title and abstract.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Teaches a 0.2 mm in diameter spot moving on the cornea at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches a substantially overlapping pattern on the cornea. See page 2285, 2nd full paragraph.
25. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
26. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
27. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 50 mJ per pulse to said corneal tissue.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
28. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 6: 0.2 mm in diameter. See page 2285, column 1, lines 17-22. 1 mm in diameter. See p. 2285, column 1, lines 25-28.
29. The method for performing ophthalmic surgery according to claim 25, wherein:	See claim 25.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 6: 0.2 mm in diameter. See page 2285, column 1, lines 17-22. 1 mm in diameter. See p. 2285, column 1, lines 25-28.

30. The method for performing ophthalmic surgery according to claim 26, wherein:	See claim 26.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 6: 0.2 mm in diameter. See page 2285, column 1, lines 17-22. 1 mm in diameter. See p. 2285, column 1, lines 25-28.
31. The method for performing ophthalmic surgery according to claim 27, wherein:	See claim 27.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 6: 0.2 mm in diameter. See page 2285, column 1, lines 17-22. 1 mm in diameter. See p. 2285, column 1, lines 25-28.
32. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
successive pulses of said laser beam are overlapped at least 50 percent.	Teaches a 0.2 mm in diameter spot moving at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches successive pulses overlapping more than 50%. See page 2285, 2nd full paragraph.
36. the method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 6: 213 nm: ablation rate = 0.3 μm/pulse for the cornea and 0.8 μm/pulse for the synthetic lentilcules. See p. 2285, column 1, line 45 to column 2, line 2.
39. The method for performing ophthalmic surgery, comprising:	Ref. 6 teaches a method of performing ophthalmic surgery. See title and abstract.
pulsing a laser beam at an energy level of no greater than 20 mJ per pulse onto corneal tissue; and	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Teaches a 0.2 mm in diameter spot moving on the cornea at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches a substantially overlapping pattern on the cornea. See page 2285, 2nd full paragraph.
40. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.

said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 6: 0.2 mm in diameter. See page 2285, column 1, lines 17-22. 1 mm in diameter. See p. 2285, column 1, lines 25-28.
41. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
successive pulses of said laser beam are overlapped at least 50 percent.	Teaches a 0.2 mm in diameter spot moving at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches successive pulses overlapping more than 50%. See page 2285, 2nd full paragraph.
42. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam is pulsed at a repetition rate of at least 20 Hz.	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.
43. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.
45. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 6: 213 nm: ablation rate = 0.3 μm/pulse for the cornea and 0.8 μm/pulse for the synthetic lentilcules. See p. 2285, column 1, line 45 to column 2, line 2.
78. A method of performing corneal refractive surgery by reshaping a portion of a corneal surface, said method comprising:	Ref. 6 teaches a method of performing corneal refractive surgery by reshaping a portion of a corneal surface. See title and abstract.

substantially overlapping	Teaches a 0.2 mm in diameter spot moving on the cornea at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches a substantially overlapping pattern on the cornea. See page 2285, 2nd full paragraph.
a plurality of ultraviolet laser beam pulses over an area of a corneal surface	Ref. 6 teaches ultraviolet laser beam pulses over an area of a corneal surface. See title, abstract, and Fig. 1 (10 Hz pulsing laser shown).
sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per ultraviolet laser beam pulse;	Ref. 6: 213 nm: ablation rate = 0.3 μm/pulse for the cornea and 0.8 μm/pulse for the synthetic lentilcules. See p. 2285, column 1, line 45 to column 2, line 2.
said laser beam pulses having an energy level of no greater than 20 mJ per pulse; and	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
said laser beam pulses having a pulse repetition rate of at least 50 pulses per second.	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.
79. The method of performing corneal refractive surgery by reshaping a portion of the corneal surface according to claim 78, wherein:	See claim 78.
said laser beam pulses have an energy level of no greater than 10 mJ per pulse.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
91. A method for performing ophthalmic surgery, comprising:	Ref. 6 teaches a method for performing ophthalmic surgery. See title and abstract.
pulsing an ultraviolet laser beam;	Ref. 6 teaches pulsing an ultraviolet laser beam. See Fig. 1.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 6 teaches applying a pulsing ultraviolet laser beam onto corneal tissue. See title.

scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Teaches a 0.2 mm in diameter spot moving on the cornea at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches a substantially overlapping pattern on the cornea. See page 2285, 2nd full paragraph.
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.
93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Solid state lasers "can be rapidly pulsed (KHz range) allowing the beam to be scanned onto the target in any pattern desired by using state-of-art scanning technology." See p. 2284, column 2, lines 5-8.
94. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per pulse.	Ref. 6: 213 nm: ablation rate = 0.3 μm/pulse for the cornea and 0.8 μm/pulse for the synthetic lentilcules. See p. 2285, column 1, line 45 to column 2, line 2.
95. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ/pulse. See p. 2285, column 1, lines 17-22.
96. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said ultraviolet laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 6: 2.3 mJ/pulse. See p. 2285, column 1, lines 25-28. 0.4 mJ pulse. See p. 2285, column 1, lines 17-22.
97. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91

successive pulses of said ultraviolet laser beam are overlapped at least 50 percent.	Teaches a 0.2 mm in diameter spot moving at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches successive pulses overlapping more than 50%. See page 2285, 2nd full paragraph.
98. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
successive pulses of said ultraviolet laser beam are overlapped in a range of 50 to 80 percent.	Teaches a 0.2 mm in diameter spot moving at 0.1 mm/s and pulsing at 10 Hz. Therefore, Ref. 6 inherently teaches successive pulses overlapping more than 50%. See page 2285, 2nd full paragraph.

E. **Claim Chart V-E: Reference 7**

Claims 24-31, 33, 34, 36, 38-40, 42-43, 45, 47, 78, 79, 91-96 are anticipated by Reference 7: Gailitis et al, "Solid State Ultraviolet Laser (213 nm) Ablation of the Cornea and Synthetic Collagen Lenticules", Lasers in Surgery and Medicine 11:556-562 (1991).

24. A method for performing ophthalmic surgery, comprising:	Ref. 7 teaches a method of performing ophthalmic surgery. See title and abstract.
pulsing a laser beam at a repetition rate of at least 20 Hz;	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
applying said laser beam onto corneal tissue; and	Ref. 7 teaches applying a laser beam onto corneal tissue. See title and abstract.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision." Page 557, lines 25-30. Thus teaching 100% overlapping.
25. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
26. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.

said laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
27. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam provides an energy level of no greater than 50 mJ per pulse to said corneal tissue.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
28. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Spot size = 200 μm. Page 557, column 2, lines 10-13, and page 558, column 1, 4th paragraph.
29. The method for performing ophthalmic surgery according to claim 25, wherein:	See claim 25.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Spot size = 200 μm. Page 557, column 2, lines 10-13, and page 558, column 1, 4th paragraph.
30. The method for performing ophthalmic surgery according to claim 26, wherein:	See claim 26.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Spot size = 200 μm. Page 557, column 2, lines 10-13, and page 558, column 1, 4th paragraph.
31. The method for performing ophthalmic surgery according to claim 27, wherein:	See claim 27.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Spot size = 200 μm. Page 557, column 2, lines 10-13, and page 558, column 1, 4th paragraph.
33. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
34. The method for performing ophthalmic surgery according to claim 25, wherein:	See claim 25.

said laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
36. the method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 7: 213 nm: ablation rate = 0.23 µm/pulse. See p. 558, column 1, 4th paragraph.
38. The method for performing ophthalmic surgery according to claim 24, wherein:	See claim 24.
said pulsed laser beam is scanned in linear patterns.	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision." Page 557, lines 25-30. Thus teaching a linear scanning pattern.
39. The method for performing ophthalmic surgery, comprising:	Ref. 7 teaches a method of performing ophthalmic surgery. See title and absract.
pulsing a laser beam at an energy level of no greater than 20 mJ per pulse onto corneal tissue; and	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision." Page 557, lines 25-30. Thus teaching 100% overlapping.
40. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Spot size = 200 µm. Page 557, column 2, lines 10-13, and page 558, column 1, 4th paragraph.
42. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam is pulsed at a repetition rate of at least 20 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
43. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.

said laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
45. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 7: 213 nm: ablation rate = 0.23 µm/pulse. See p. 558, column 1, 4th paragraph.
47. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said pulsed laser beam is scanned in linear patterns.	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision." Page 557, lines 25-30. Thus teaching a linear scanning pattern.
78. A method of performing corneal refractive surgery by reshaping a portion of a corneal surface, said method comprising:	Ref. 7 teaches a method of performing corneal refractive surgery by reshaping a portion of a corneal surface. See title and abstract.
substantially overlapping	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision." Page 557, lines 25-30. Thus teaching 100% overlapping.
a plurality of ultraviolet laser beam pulses over an area of a corneal surface	Ref. 7 teaches ultraviolet laser beam pulses over an area of a corneal surface. See title and abstract.
sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per ultraviolet laser beam pulse;	Ref. 7: 213 nm: ablation rate = 0.23 µm/pulse. See p. 558, column 1, 4th paragraph.
said laser beam pulses having an energy level of no greater than 20 mJ per pulse; and	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
said laser beam pulses having a pulse repetition rate of at least 50 pulses per second.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.

79. The method of performing corneal refractive surgery by reshaping a portion of the corneal surface according to claim 78, wherein:	See claim 78.
said laser beam pulses have an energy level of no greater than 10 mJ per pulse.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
91. A method for performing ophthalmic surgery, comprising:	Ref. 7 teaches a method for performing ophthalmic surgery. See title and abstract.
pulsing an ultraviolet laser beam:	Ref. 7 teaches pulsing an ultraviolet laser beam. See title and abstract.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 7 teaches applying a pulsing ultraviolet laser beam onto corneal tissue. See title and abstract.
scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Ref. 7: "[T]he globes were manually moved back and fourth three times with the XY stage to obtain a horizontal linear excision," thus teaching overlapping patterns on the corneal tissue Page 557, lines 25-30.
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Ref. 7: "With the use of solid state lasers, pulse rates of 1,000-10,000 Hz may be obtained." Page 562, lines 2-4.
94. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per pulse.	Ref. 7: 213 nm: ablation rate = 0.23 µm/pulse. See p. 558, column 1, 4th paragraph.
95. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.

said pulsing ultraviolet laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.
96. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said ultraviolet laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 7: 0.4 mJ/pulse. See p. 558, column 1, 4th paragraph. 2.3 mJ/pulse. See page 557, column 2, lines 10-13.

F. **Claim Chart V-F: Reference 8**

Claims 39-41, 45, 91- 98 are anticipated by Reference 8: Lin "A Multiwavelength Solid State Laser for Ophthalmic Applications", Proceedings of Ophthalmic Technologies II, SPIE Vol. 1644, 19-21 Jan 1992, p. 266.

39. The method for performing ophthalmic surgery, comprising:	Ref. 8 teaches a method of performing ophthalmic surgery. See title.
pulsing a laser beam at an energy level of no greater than 20 mJ per pulse onto corneal tissue; and	Ref. 8: 0.5-1.2 mJ/pulse. Page 270, 1st paragraph.
scanning said pulsed laser beam in a substantially overlapping pattern on said corneal tissue.	Ref. 8: 30-50% overlapping. Page 273, 1st paragraph (ii).
40. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
said laser beam has a spot size on said corneal tissue of no greater than 1 mm.	Ref. 8: 0.2-0.5 mm. See page 267, 6th paragraph.
41. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
successive pulses of said laser beam are overlapped at least 50 percent.	Ref. 8: 30-50% overlapping. Page 273, 1st paragraph (ii).
45. The method for performing ophthalmic surgery according to claim 39, wherein:	See claim 39.
an area of corneal tissue in a range of 0.05 to 0.5 microns deep is removed with each pulse of said laser beam.	Ref. 8: Fig. 3 shows ablation rate 0.15-1.0 µm/pulse. See page 271.

91. A method for performing ophthalmic surgery, comprising:	Ref. 8 teaches a method for performing ophthalmic surgery. See title.
pulsing an ultraviolet laser beam;	Ref. 8 teaches pulsing an ultraviolet laser beam. See page 269, 3rd paragraph.
applying said pulsing ultraviolet laser beam onto corneal tissue; and	Ref. 8 teaches applying a pulsing ultraviolet laser beam onto corneal tissue. See page 270, 1st paragraph.
scanning said pulsing laser beam in a purposefully substantial overlapping pattern on said corneal tissue.	Ref. 8: teaches 30-50% overlapping on the corneal tissue. Page 273, 1st paragraph (ii).
92. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 20 Hz.	Teaches a repetition of 200 Hz. See page 269, 3rd paragraph.
93. The method of performing ophthalmic surgery according to claim 91, wherein:	Se claim 91.
said pulsing ultraviolet laser beam is pulsed at a repetition rate of at least 50 Hz.	Teaches a repetition of 200 Hz. See page 269, 3rd paragraph.
94. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of 0.05 and 0.5 microns of corneal tissue per pulse.	Ref. 8: Fig. 3 shows ablation rate 0.15-1.0 μm/pulse. See page 271.
95. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said pulsing ultraviolet laser beam provides an energy level of no greater than 10 mJ per pulse to said corneal tissue.	Ref. 8: 0.5-1.2 mJ/pulse. Page 270, 1st paragraph.
96. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
said ultraviolet laser beam provides an energy level of no greater than 20 mJ per pulse to said corneal tissue.	Ref. 8: 0.5-1.2 mJ/pulse. Page 270, 1st paragraph.
97. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.

successive pulses of said ultraviolet laser beam are overlapped at least 50 percent.	Ref. 8: 30-50% overlapping. Page 273, 1st paragraph (ii).
98. The method of performing ophthalmic surgery according to claim 91, wherein:	See claim 91.
successive pulses of said ultraviolet laser beam are overlapped in a range of 50 to 80 percent.	Ref. 8: 30-50% overlapping. Page 273, 1st paragraph (ii).

CERTIFICATE OF SERVICE

This is to certify that one copy of this public protest and its attachments II-IV are being served upon the attorney of record for J.T. Lin via next day delivery courier, at:

William H. Bollman
Farkas & Manelli, PLLC
2000 M Street, N.W., 7^{th} Floor
Washington, D.C. 20036-3307

14 March 2000
DATE

Benoit Castel
Benoit Castel, Esq.
Registration No. 35,041

FORM PTO-1449

To: U.S. Department of Commerce

Atty.		Client Ref.
Bollman	ʊ2-575	LIN

Applicant: LIN

Appln. No.: 09/084,441

Filing Date: May 27, 1998

Examiner: Unknown | Group Art Unit: 3736

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date: May 26, 1999 Page 4 of 4

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Examiner M. Peffley | Date Considered: 9/29/99

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Date: June 25, 1998 Page 1 of 7

Atty. Dkt. No. Bollman	62-…
Client Ref.	
Applicant: LIN	
Appln. No.: 09/084,441	
Filing Date: May 27, 1998	
Examiner: unknown	Group Art Unit: 3731

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	Applicant: LIN		
	Appln. No.: 09/084,441		
	Filing Date: May 27, 1998		
	Examiner: unknown	Group Art Unit: 3731	

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June 25, 1998 Page 2 of

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...: June 25, 1998 Page 3 of 7

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ate: June 25, 1998 Page 4 of

Atty. Bollman	# 6_ 575	Client Ref.
Applicant: LIN		
Appln. No.: 09/084,441		
Filing Date: May 27, 1998		
Examiner: unknown		Group Art Unit: 3731

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Applicant: LIN

Appln. No.: 09/084,441

Filing Date: May 27, 1998

...ate: June 25, 1998 Page 5 of

Examiner: unknown Group Art Unit: 3731

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Examiner M. Peffley Date Considered: 9/29/99

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JUN 25 1998

[D]ate: June 25, 1998 Page 6 of 7

Atty.		Client Ref.
Bollman	62-575	
Applicant: LIN		
Appln. No.: 09/084,441		
Filing Date: May 27, 1998		
Examiner: unknown		Group Art Unit: 3731

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Examiner's Initials*					Class	SubClass	Filing Date (if appropriate)
MP	AR	5,423,801	6/1995	Marshall et al.			
MP	BR	5,425,727	6/1995	Koziol			
MP	CR	5,425,729	6/1995	Ishida et al.			
MP	DR	5,437,658	8/1995	Muller et al.			
MP	ER	5,442,487	8/1995	Mizuno			
MP	FR	5,445,633	8/1995	Nakamura et al.			
MP	GR	5,461,212	10/1995	Seiler et al.			
MP	HR	5,470,329	11/1995	Sumiya			
MP	IR	5,480,396	1/1996	Simon et al.			
MP	JR	5,505,723	4/1996	Muller			
MP	KR	5,507,741	4/1996	L'Esperance, Jr.			
MP	LR	5,507,799	4/1996	Sumiya			
MP	MR	5,549,597	8/1996	Shimmick et al.			
MP	NR	5,556,395	9/1996	Shimmick et al.			

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Examiner M. Peffley   Date Considered: 9/29/99

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[J]une 25, 1998 Page 7 of 7

JUN 25 1998

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[Ex]aminer's Initials*					Class	SubClass	Filing Date (if appropriate)
MP	AR	5,599,340	2/1997	Simon et al.			
MP	BR	5,613,965	3/1997	Muller			
MP	CR	5,624,436	4/1997	Nakamura et al.			
MP	DR	5,637,109	6/1997	Sumiya			
MP	ER	5,646,791	7/1997	Glockler			
MP	FR	5,651,784	7/1997	Klopotek			
MP	GR	5,683,379	11/1997	Hohla			
MP	HR	5,711,762	1/1998	Trokel			
MP	IR	5,713,892	2/1998	Shimmick			
MP	JR	5,735,843	4/1998	Trokel			
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Examiner M. Peffley Date Considered: 9/29/99

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Atty.		Client Ref.
Bollman	[redacted]5	LIN
Applicant: LIN		
Appln. No.: 09/084,441		
Filing Date: May 27, 1998		
Examiner: Unknown	Group Art Unit: 3736	

Date: May 26, 1999 Page 1 of 4

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Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	SubClass	Filing Date (if appropriate)
MP	AR	2,480,737	8/1949	Jayle			
	BR	3,074,407	1/1963	Moon			
	CR	3,476,112	11/1969	Elstein			
	DR	4,169,663	10/1979	Murr			
	ER	4,423,728	1/1984	Lieberman			
	FR	4,461,294	7/1984	Baron			
	GR	4,526,171	7/1985	Schachar			
	HR	4,546,773	10/1985	Kremer et al.			
	IR	4,598,714	7/1986	Kremer et al.			
	JR	4,619,259	10/1986	Graybill et al.			
	KR	4,653,495	5/1987	Nanaumi			
	LR	4,662,370	5/1987	Hoffman et al.			
	MR	4,688,570	8/1937	Kramer et al.			
MP	NR	4,720,189	1/1988	Heyman et al.			

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		Document Number	Date MM/YYYY	Country	Inventor Name	Class	SubClass	English Enclose	English No	Translation Enclosed	Translation No
MP	OR	0151869B1	1/1990	Europe	L'Esperance						
MP	PR	0207648B1	8/1990	Europe	L'Esperance						
MP	QR	0296982A1	6/1988	Europe	Hanna	4					
MP	RR	0602756A1	6/1994	Europe	Parel						
MP	SR	1243732	10/1984	Canada	L'Esperance						
MP	TR	PCT/FR87/00139	11/1987	PCT	Lepage						
MP	UR	PCT/US92/09625	5/1993	PCT	Lai						
MP	VR	PCT/US93/00327	8/1993	PCT	Cozean et al.						

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MP	WR	Barraquer, "Lamellar Keratoplasty (special techniques)" Annals of Ophthalmology, 6/1972, pp. 437-469.
MP	XR	Burnett, "Company Denies Delay in Approval for Laser", Orlando Sentinel, 2/1993, pp. 12-13.
MP	YR	Burnett, "Medical Technology", Orlando Sentinel, 2/1993, pp. 1-5.
MP	ZR	Gailitis et al., "Solid State Ultraviolet Laser (213 nm) Ablation of the Cornea and Synthetic Collagen Lenticules", Lasers in Surgery and Medicine, 12/1991, pp. 556-562. 7
MP	AAR	Gartry et al., "Excimer Laser Photorefractive Keratectomy", Ophthalmology, 8/1992, pp. 1210-1219.
MP	BBR	Gilbert, "Corneal Topography: In Search of the Excimer Islands", Eye Care Technolgy, 10/1993, pp. 23-28.

Examiner M Peffley Date Considered: 9/29/99

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Atty.	M#	Client Ref.
Bollman	62[illegible]5	LIN

Applicant: LIN

Appln. No.: 09/084,441

Filing Date: May 27, 1998

Examiner: Unknown | Group Art Unit: 3736

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Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	SubClass	Filing Date (if appropriate)
MP	AR	4,770,172	9/1988	L'Esperance			
	BR	4,807,623	2/1989	Lieberman			
	CR	4,838,679 (3)	6/1989	Bille			
	DR	4,896,015	1/1990	Taboada et al.			
	ER	4,907,586	3/1990	Bille et al.			
	FR	4,968,130	11/1990	Hideshima et al.			
	GR	4,993,826	2/1991	Yoder			
	HR	5,063,942	11/1991	Kilmer et al.			
	IR	5,102,409	4/1992	Balgorod			
	JR	5,108,388	4/1992	Trokel			
	KR	5,133,726	7/1992	Ruiz et al.			
	LR	5,222,960	6/1993	Poley			
	MR	5,250,062	10/1993	Hanna			
MP	NR	5,288,292	2/1994	Giraud et al.			

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		Document Number	Date MM/YYYY	Country	Inventor Name	Class	SubClass	English Enclosed	English No	Translation Enclosed	Translation No
MP	OR	~~PCT/US94/02007~~	~~9/1994~~	~~PCT~~	~~Knopp et al.~~						
MP	PR	~~PCT/EP95/01287~~	~~10/1995~~	~~PCT~~	~~Hohla et al.~~						
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MP	XR	Lin et al, "Corneal Topography Following Excimer Photorefractive Kerectomy for Myopia", Journal of Cataract Refractive Surgery, 1993, pp. 149-154.
MP	YR	Lin et al, "A Multiwavelength Solid State Laser for Ophthalmic Applications", Ophthalmic Technolgies, 6/1992, pp. 266-275. (8)
MP	ZR	Marguerite B. McDonald et al, "Central Photorefractive Keratectomy for Myopia", Ophthalmology, 9/1991, pp. 1327-1337.
MP	AAR	Marshall et al, "Long-term Healing of the Central Cornea after Photorefractive Keratectomy Using an Excimer Laser", 10/1998, pp. 1411-1421.
MP	BBR	Marshall et al, "Photoablative Reprofiling of the Cornea Using an Excimer Laser: Photorefractive Keratectomy", Lasers in Ophthalmology, 1/1986, pp. 21-48.

Examiner M. Peffley Date Considered: 9/29/99

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Atty.	M#	Client Ref.
Bollman	62[illegible]5	LIN

Applicant: LIN

Appln. No.: 09/084,441

Filing Date: May 27, 1998

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MP	AR	5,290,301	3/1994	Lieberman			
	BR	5,336,217	8/1994	Buys et al.			
	CR	5,345,534	9/1994	Najm et al.			
	DR	5,349,590	9/1994	Amirkhanian et al.			
	ER	5,350,374	9/1994	Smith			
	FR	5,441,511	8/1995	Hanna			
	GR	5,474,548	12/1995	Knopp et al.			
	HR	5,520,679	5/1996	Lin			
	IR	5,582,752	12/1996	Zair			
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	KR	5,634,920	6/1997	Hohla			
	LR	5,684,562	11/1997	Fujieda			
	MR	5,782,822	7/1998	Telfair et al.			
MP	NR	5,849,006	12/1998	Frey et al.			

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MP	WR	McDonald et al., "Central Photorefractive Keratectomy for Myopia", Arch Ophthalmology, 6/1990, pp. 799-808.
MP	XR	Palikaris et al, "Excimer Laser in Situ Keratomileusis and Photorefractive Keratectomy for Correction of High Myopia", Journal of Refractive and Corneal Surgery, 9/1994, pp. 498-510.
MP	YR	Ren et al, "Corneal Refractive Surgery Using an Ultra-Violet (213nm) Solid State Laser" Ophthalmic Technologies, 6/1991, pp. 129-139. 5
MP	ZR	Rozakis, "Refractive Lamellar Keratoplasty" History of Keratomileusis, 1994, Chapt. 1-13.
MP	AAR	Seiler et al, "Excimer Laser (193nm) Myopic Keratomileusis in Sighted and Blind Human Eyes" Refractive and Corneal Laser Surgery, 6/1990, pp. 165-173.
MP	BBR	Serdarevic, "Corneal Laser Surgery", Ophthalmic Lasers, 1989, pp. 919-970. 9

Examiner: M. Peffley | Date Considered: 9/29/99

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